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RESEARCH PAPER

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How Paternalistic Leadership Influences IT Security Policy Compliance: The Mediating Role of the Social Bond

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Abstract

Leadership plays an important role in changing employees' behavior. This paper aims to investigate the relationship between paternalistic leadership and employees' information security policy (ISP) compliance. We adopt social bond theory as the theoretical lens to explain the effect of paternalistic leadership on ISP compliance through social bond formation. We developed a research model and tested it using data comprising 314 dyads of employees and their supervisors in organizations. The results show that all three dimensions of paternalistic leadership— benevolence, morality, and authoritarianism—positively influence employee ISP compliance. The social bond partially mediates the effects of benevolence and morality on compliance intention. Overall, this paper reveals the positive effect of paternalistic leadership in improving ISP compliance and the mediating role of the social bond in explaining the impact of paternalistic leadership on ISP compliance. In addition, the mediation effect of the social bond suggests that the non-IT related routine behavior of leaders can also affect employee ISP compliance through facilitating the formation of social bonds with and among employees.

Keywords: IT Security Threat, Compliance, Paternalistic Leadership, Social Bond

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1 Introduction

With the rapid development of information technology (IT), information security threats faced by individuals and organizations continue to grow (Ponemon, 2016). While organizations adopt advanced technologies and information security policies (ISP) to protect their digital assets, employees often do not comply. Research shows that extensive IT abuses are found in organizations (D'Arcy & Devaraj, 2012; Richardson & Director, 2008). In fact, over half of information breach incidents are directly or indirectly incurred by employee misconduct and noncompliant behaviors, making insiders the second-largest IT threat source, second only to malicious outside attackers (Dhillon & Moores, 2001; Richardson & Director, 2008). Therefore, scholars and practitioners have devoted extensive attention to investigating the topic of employee ISP compliance (e.g. Bulgurcu, Cavusoglu, & Benbasat, 2010; Herath & Rao, 2009; Ifinedo, 2014; S. M. Lee, Lee, & Yoo, 2004; Vance & Siponen, 2012).

In organizational settings, leaders oversee all information security strategies and policies, which ultimately affect employee ISP compliance behavior (Hu, Dinev, Hart, & Cooke, 2012; Purvis,

Sambamurthy, & Zmud, 2001; Veiga & Eloff, 2007). However, a review of the existing literature shows that the impact of leadership on employee ISP compliance is understudied. Current ISP compliance research is mostly focused on the impact of employees' cognitive factors (Moody, Siponen, & Pahnila, 2018), while organizational factors, such as leadership, have not received proportionate attention. Leadership is an important aspect of ISP compliance because leadership is primarily responsible for the development and deployment of information security practices, such as issuing policies and guidelines, designing incentives and training, and ensuring technology support, which directly affect employees' cognition and behavior. (Hu et al., 2012; Purvis et al., 2001; Veiga & Eloff, 2007).

Furthermore, extant studies investigating the impact of leaders on ISP compliance have primarily examined general concepts related to leadership, such as top management support (Humaidi & Balakrishnan, 2018; Knapp, Marshall, Kelly Rainer, & Nelson Ford, 2006) and top management participation (Hu et al., 2012). These general concepts, however, are too broad to offer an in-depth explanation of the effects of leaders' participation and support on employee ISP compliance. A deeper understanding of the phenomenon is necessary because leaders of different styles may participate and offer support in different ways. For example, authoritarian leaders may practice close supervision while benevolent leaders may participate by inspiring employees and facilitating their development (Antonakis & Day, 2017; B.-S. Cheng, Chou, Wu, Huang, & Farh, 2004; Westwood, 1992).

However, different leadership styles are associated with different effects. For example, some research has indicated that security monitoring may positively impact employee security behavior, whereas presenting visions of security or encouraging related learning were associated with no significant impact (Griffin & Hu, 2013). Other research has found that different leadership styles follow different paths to influence employee security behavior (Zohar, 2002). Gaining a better understanding of the actual elements and influencing processes involved in different leadership styles would help leaders allocate their energy and resources more wisely. Hence, in this paper we separately examine the impact of different styles of paternalistic leadership on employee ISP compliance. By doing so, we not only open the "black box" of how leader participation and support affect employee ISP compliance, but we also provide more specific guidance to practitioners regarding effective participation in information security management.

As an important leadership style, the paternalistic leadership (PL) style has an innate potential to influence general employee compliance. PL originates from the concept of paternalism, which describes the phenomenon where the leaders take care of their followers in a parental way and the followers offer their loyalty and conformity in exchange (Weber, 1968). PL combines strong authority, benevolence, and moral standards, and accordingly has three dimensions, authoritarian leadership, benevolent leadership and moral leadership (B. S. Cheng et al., 2004; Farh, B.-S. Cheng, & Chou, 2000). Compliance may either be secured on the basis of employee fear and respect for authority, or via a sense of moral obligation and a desire to reciprocate a leader's benevolence (B. S. Cheng et al., 2004; Pellegrini & Scandura, 2008). Following this logic, we expect that PL would influence ISP compliance. However, existing research has only considered the impact of PL on compliance in general cases, providing limited explanation for how PL affects ISP compliance in a specific context. Compliance behaviors in different contexts have different requirements, driving factors, barriers, and forming mechanisms. How PL functions in the ISP compliance context cannot be elucidated by only studying compliance in a general fashion. Theoretical and statistical approaches that consider contextual features are necessary to clarify how PL affects employee ISP compliance.

The impact of leaders can be broad. Beyond the direct impact, leaders can affect employee behavior by changing their cognitions and perceptions related to the behavior (Veiga & Eloff, 2007). For example, employee perceptions of the information security climate, organizational culture, self-efficacy, trust in ISP, attitude, subjective norm, and perceived behavioral control vis-à-vis ISP compliance have all been examined as mediators affecting the impact of leader support, participation, and practices (M. Chan, Woon, & Kankanhalli, 2005; Hu et al., 2012; Humaidi & Balakrishnan, 2018). This suggests that PL is also likely to influence employee compliance via mediating mechanisms. The mediating variables identified in the ISP compliance literature mainly reflect leaders' efforts in information security practices, such as fear appeal conversation concerning information security threats and information security training programs (M. Chan et al., 2005; D'Arcy, Hovav, & Galletta, 2009). To extend this literature, we contend that the quotidian behavior of leaders is also important, because the routine behavior of leaders can function as a key driver of socialization processes within an organization. Leaders can regulate the socialization experience of employees by interacting with them, facilitating their career development, setting goals for their work, designing work-based group activities, and promoting organizational values; all of these things may affect employee perceptions of the social bond (Wiatrowski & Anderson, 1987). According to social bond theory (SBT) (Hirschi, 1969), employees with strong social bonds are unlikely to participate in deviant behaviors such as ISP violation (L. Cheng, Li, Li, Holm, & Zhai,

2013; Ifinedo, 2014; Safa, Von Solms, & Furnell, 2016). Therefore, we adopt social bond theory as a theoretical lens to explain the indirect impact of PL on ISP compliance. This mediation proposition has two advantages. First, it enables us to investigate how the routine behavior of leaders, which may initially seem unrelated to information security, influence employee ISP compliance. This is a perspective that is lacking in the extant literature; however, this perspective is necessary to develop a comprehensive understanding of the influence of leaders on employee ISP compliance and will expand our knowledge about the scope of leaders' behavior capable of influencing employee ISP compliance. Second, the three PL dimensions, AL, BL and ML, correspond to different routine behaviors of leaders and may therefore result in different levels of social bonding. SBT may help to differentiate the impact of each PL dimension on employee ISP compliance.

Our research makes three major contributions: First, we demonstrate the necessity to investigate leadership styles in ISP compliance research. We examined the impact of the three dimensions of paternalistic leadership and found that, though AL, BL, and ML all positively influence employees' ISP compliance, their effects have different origins, different degrees, and different mechanisms. Second, we introduce a specific context and a new mediating mechanism into the PL and compliance literature and derive new knowledge about the impact of each PL dimension. Surprisingly, we found AL to play a positive role in ISP compliance. This finding extends the previous PL research that focuses on the negative impact of AL discussed (Pellegrini & Scandura, 2008). We also found that BL and ML can exert indirect influences on employees' ISP compliance through the mediation of the social bond. Third, we expand the application of SBT in ISP compliance studies. We found that social bond is an important mediating mechanism for understanding the impact of leadership on employee ISP compliance, demonstrating that leaders' routine behavior may strengthen social bonds and consequently increase employee ISP compliance.

The remainder of this paper is organized as follows. In the next section, we introduce the theoretical framework. The subsequent section develops our research model and hypotheses. We then describe research methods and present data analysis results. After a discussion on findings, theoretical contributions, managerial implications, limitations, and future research directions, we end the paper with a short conclusion.

2 Theoretical Framework

In this section, we theoretically explicate the influence of paternalistic leadership styles on employee ISP compliance. Based on the literature of PL and SBT, we propose that PL not only influences employee ISP compliance directly, but also exerts an indirect impact through the mediation of the social bond.

2.1 Paternalistic Leadership

Paternalism, as a management concept, was first coined by Weber (1968). Weber describes paternalism as a traditional form of domination that relies on the idea that loyalty and obedience are owed to the paternal authority. In relation to this, Redding (1994) contends that paternalistic leaders also offer support and protection to subordinates and regard it as an obligation to take care of subordinates and promote their welfare in exchange for loyalty and deference (Aycan, Kanungo, & Sinha, 1999; Gelfand, Erez, & Aycan, 2007). Paternalistic leaders, like parents, ideally take a personal interest in subordinates' at-work and off-work lives (Gelfand et al., 2007). Farh & Cheng (2000) describe PL as a style that combines strong discipline and authority with parental benevolence and moral integrity. They define PL as having three dimensions: authoritarianism, benevolence, and morality. Authoritarianism stresses leaders' strong authority, control over subordinates, and the unquestioned obedience of subordinates. Benevolence refers to leaders' holistic concern for subordinates' personal and familial well-being. Morality means that leaders demonstrate superior personal virtues, like unselfishness and integrity, which helps elicit respect from subordinates. Researchers have noticed the negative interdimensional correlations among paternalistic leadership dimensions, finding that benevolence and morality positively relate to each other while both negatively relate to authoritarianism (B. S. Cheng et al., 2004; Pellegrini & Scandura, 2008).

The triad model of PL has been widely adopted and lies at the foundation of many subsequent studies (Pellegrini & Scandura, 2008) testing the effectiveness of PL. At the organizational level, leaders' benevolence and morality have been found to positively affect team identification, a benevolent and principled ethical climate (M. Y. Cheng & L. Wang, 2015), top management team decision effectiveness, team cognitive conflict (L. Chen, Yang, & Jing, 2015), teamwork, interpersonal affinity, and team adaption (C. C. Chen, 2013). Studies further indicate that leaders' benevolence and morality negatively affect egoistic ethical climate (M. Y. Cheng & L. Wang, 2015) and team affective conflict (L. Chen et al., 2015). Conversely, research suggests that authoritarianism has a negative impact on these outcomes. At the individual level, leaders' benevolence and morality appear to be associated with desirable outcomes, such as trust in supervisor (X. P. Chen, Eberly, Chiang, Farh, & B.-S. Cheng, 2014; M.

Wu, Huang, Li, & Liu, 2012), in-role performance, organizational citizenship behavior (X. P. Chen et al., 2014; M. Wu, Huang, & S. C. Chan, 2012), creativity (A.-C. Wang, Chiang, Tsai, Lin, & B.-S. Cheng, 2013), organizational commitment (Tsai, Wu, & Yeh, 2013) and leader-member exchange (Zhang, Huai, & Xie, 2015). Here again, authoritarian leadership styles have been linked to negative effects in this regard. However, the negative impact of authoritarianism may be either weakened or altered by moderators, including the traditionalism of subordinates (B.-S. Cheng et al., 2004; Farh, B.-S. Cheng, Chou, & Chu, 2006) as well as affection for and job dependence on leaders (B.-S. Cheng & Jen, 2005). Pellegrini and Scandura (2008), A. Lee, Tian, and Willis (2017), Mansur et al. (2017) and Si et al. (2017) offer a systematic review of PL.

PL is particularly prevalent in Asia, Middle East, Latin America and Africa (Pellegrini & Scandura, 2008). Pellegrini and Scandura (2008) suggest that PL is more effective in the non-Western context, such as China, Pakistan, India, Turkey, etc., because PL is supported by the cultures, social norms, traditions and legal structures in societies such as these. However, there is emerging research indicating that PL is also effective in Western contexts like North America (Aycan et al., 2000; Pellegrini, Scandura, & Jayaraman, 2007). Moreover, given the current trend toward globalization, recent PL studies have started to examine its impact in a mixed context. For example, paternalistic leaders may be sent abroad to manage Western employees or Western leaders may apply PL to guide their non-Western employees. Salminen-Karlsson (2015) has investigated how expatriate European leaders demonstrate PL in managing their Indian employees. Nie and Lämsä (2018) have studied how leaders in Finnish organizations applied PL to influence their Chinese immigrant employees. Therefore, the impacts of PL are relevant worldwide and are worthy of continued investigation.

We focus on PL in the current research because it offers a new perspective for explaining employee ISP compliance. Employees may want to comply with ISP, for example, because they rely on their leaders, wish to repay a leader's kindness, or respect a leader's morals. Past PL research has invoked the relationship between PL and employee compliance but only a few studies have empirically tested these relationships (B. S. Cheng et al., 2004; Farh, Cheng, B.-S., Chou, L. F., & Chu, X. P., 2006; Niu, A.-C. Wang, & Cheng B.-S., 2009). These studies explain employee compliance from the perspective of the authoritarian dimension (B. S. Cheng et al., 2004), but neglect the potential impact of the benevolent and moral dimensions. More importantly, these studies have not considered the particular context of ISP compliance. In fact, ISP compliance has unique contextual features. First, organizations often use open languages to describe the ISP; since these are open to interpretation, employees may often be unsure about what behavior is expected (Xue, Liang, & L. Wu, 2011). Second, the success of ISP compliance is indicated by nothing going wrong, thus ISP noncompliance may seem harmless or irrelevant to employees when organizations are not facing imminent malicious attack (M. Chan et al., 2005). Third, ISP often requires employees to learn new technologies or skills and then properly apply them at work (Xue et al., 2011). The learning process and extra operations required by ISP may cause conflict and inconvenience to the employees (Y. Chen, Ramamurthy, & Wen, 2012; Liang, Xue, & Wu, 2013) and may thus be resisted. Prior studies have not discussed how PL functions in terms of these contextual features. Hence, due to inadequate research on PL and compliance and the unique features of ISP compliance, conclusions about PL's impact on ISP compliance cannot be directly derived from the PL literature.

Furthermore, past literature suggests that mediating mechanisms exist between leadership and ISP compliance (M. Chan et al., 2005; Hu et al., 2012; Humaidi & Balakrishnan, 2018). The formation of employees' cognitions, and beliefs, which can all be influenced by leadership behavior, has been demonstrated to be a strong predictor of ISP compliance (Hu et al., 2012). As such, leaders can influence information security-related perceptions and beliefs by initiating fear appeal conversations, sanctions, rewards, security education, and training and awareness programs to (Y. Chen et al., 2012; D'Arcy et al., 2009; Johnston, Warkentin, & Siponen, 2015). Therefore, we propose a mediating mechanism between paternalistic leadership and ISP compliance.

2.2 Social Bond Theory

Social bond theory was first proposed by Hirschi (1969) and posits that delinquency is intrinsic to human nature and that it is the socialization, or bond, between individuals and society that prevents people from performing deviant behaviors. The stronger the social bond, the less likely a person will deviate from social norms. SBT was originally developed to investigate adolescent delinquency, such as academic cheating, drug abuse, smoking, and other misbehavior in school (e.g. Jenkins, 1997; Michaels & D Miethe, 1989). It was later extended to adult criminology and then applied to explaining organizational misbehavior (Hollinger, 1986).

Hirschi (1969) identifies four dimensions of the social bond that constrain delinquent behavior: attachment to conventional others, involvement in conventional activities, commitment to conventional goals, and belief in conventional norms. These four bonds are separate but interrelated (Agnew, 1991; Hirschi, 1969). The validity of SBT in predicting delinquent behavior

research has been widely supported (e.g. Michaels & Miethe, 1989; Wiatrowski, Griswold, & Roberts, 1981).

Attachment refers to a person's affective tie to significant others, such as parents, parental figures, peers, colleagues, and social groups. Attachment develops because these significant others take care of the individual and support the survival and development of the individual (Bowlby, 1969; Wiatrowski et al., 1981). Since people care about the opinions and expectations of the significant others, they try to avoid disappointing them by engaging in acceptable behaviors (Jenkins, 1997). In the current research, we consider attachment to leaders to be a subconstruct of the social bond that increases ISP compliance intention. If they are highly attached to leaders, subordinates are more willing to live up to leaders' expectations and avoid deviant behaviors, because they care about the leaders' feelings and want to maintain good relationships with them (L. Cheng et al., 2013; Safa et al., 2016).

Involvement in conventional activities describes the amount of time one spends on social activities. Hirschi (1969) argues that when more time is spent on conventional activities, there is less time for deviant behaviors. In our research, we consider employees' involvement in conventional activities as the extent to which they participate in organizational activities (Hollinger, 1986). Cheng et al. (2013) argue that, in the context of IT security, it is also likely that the more that employees are involved in organizational activities, the less time they will have to perform behaviors that violate the ISP. For instance, if one is occupied with group meetings and collaborating with colleagues, he or she will have less time, for example, to surf illegal websites for entertainment (Hu et al., 2012; J. Wang, Li, & Rao, 2017). Moreover, Safa et al. (2016) note that involvement in IT security-related activities like knowledge sharing, intervention programs (e.g. lectures and courses), collaboration, and experience can increase employees' intentions to comply with ISP. Such involvement could support desired employee behavior because if employees are given sufficient information, participate in decision-making processes, and have frequent interaction with colleagues, they will be more clear about what behavior is expected and desired in terms of IT security issues (Shadur, Kienzle, & Rodwell, 1999).

We define commitment to conventional goals as the extent to which people invest effort, energy, and resources in achieving conventional goals such as educational achievements or career advancement (Wiatrowski et al., 1981). It implies the perceived cost of engaging in deviant behavior (Krohn & Massey, 1980). People who are committed to conventional goals will be unlikely to engage in delinquent behavior because they will not want to jeopardize their investments or hard-won positions. In the commitment literature, such cost-avoidance commitment is referred to as continuance commitment (Meyer & Allen, 1991), and describes an individual's commitment to an entity or a course of action in which they have invested great (i.e., the perceived cost of discontinuing is high) (Meyer & Allen, 1991; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Therefore, the effort that individuals have invested in achieving goals functions as a binding force that motivates them to keep going and prevents them from behaving in a way that would sabotage their efforts. Our research suggests that employees' commitment to personal success and commitment to organizational success are inseparable, given that employees cannot claim personal success at work if their organization is failing. High commitment to organizational success implies that employees have devoted a great deal of effort to their work. As such, highly committed employees would avoid engaging in deviant behaviors, such as ISP violation, that would tarnish their personal image or threaten their career success.

Belief in conventional norms refers to one's acceptance of the moral validity of social value systems such as laws, social customs, and organizational norms (Hirschi, 1969). When employees perceive norms as fair and uniformly applied, they are more willing to accept them as a behavioral guide and then develop a belief that it is right for them to obey the norms (Schroeder, 2016). In our research, we focus on employees' beliefs in their organizational norms, including the guidelines and requirements associated with ISP compliance. Employees holding strong beliefs in organizational norms would feel obligated to comply with them and would be less likely to perform deviant behaviors (Hirschi, 1969).

Applying SBT, researchers have found that a strong bond to organizations, coworkers, and leaders is negatively related to employees' rule-breaking behavior (e.g. Hollinger, 1986; Lasley, 1988; Sims, 2002). In the IT security context, SBT has been used to explain employees' IT misuse and noncompliance to ISP in organizations (e.g. L. Cheng et al., 2013; Ifinedo, 2014; S. M. Lee et al., 2004; Safa et al., 2016). Integrating SBT with general deterrence theory, S. M. Lee et al. (2004) demonstrate that involvement and belief can decrease employee computer abuse intentions. Cheng et al. (2013) treat the social bond as a form of informal control and find that attachment to job and organization, commitment, and belief negatively affect ISP violation intentions. Employing both SBT and a recomposed theory of planned behavior, Ifinedo (2014) shows that high commitment, involvement, and belief contribute to a positive attitude toward ISP compliance and that high attachment and belief lead to high perceptions of subjective norms.

Safa et al. (2016) argue that all social bond elements except attachment positively influence attitude toward ISP compliance. Despite its usefulness for explaining ISP compliance, however, the impact of leadership on the social bond as a means of improving ISP compliance has not been studied.

2.3 How Leaders Influence the Social Bond

In organizations, the development of the social bond can be facilitated by leaders in a variety of ways.

Leaders and Attachment. First, leaders' behavior as an attachment figure can affect subordinates' attachment emotions. According to attachment theory (Bowlby, 1969, 1982), attachment is primarily used to describe child-parent relationships in which children tend to attach to their parent as a stronger and wiser caregiver offering them a secure base for survival. Later, Popper & Mayseless (2003) proposed that attachment can be applied to describe leader-follower relationships as well. Leaders with higher positions and levels of power can also play the role of caregiver, taking care of subordinates by offering guidance, support, and resources (Game, 2011). When leaders satisfy their subordinates' needs—for example, supporting their desire to engage in challenges, enhancing their self-worth and self-efficacy, and facilitating their personal growth—they demonstrate the features of responsible caregivers and are likely to derive attachment from their subordinates (Davidovitz, Mikulincer, Shaver, Izsak, & Popper, 2007). Second, employees' affective commitment to supervisors is defined as an emotional attachment (Allen & Meyer, 1990; Clugston, Howell, & Dorfman, 2000). Literature addressing affective commitment to supervisors indicates that leaders' characteristics influence employees' emotional attachment to them. For example, supervisory support (Stinglhamber & Vandenberghe, 2003), reputation and excellence of supervisors (Vandenberghe, Bentein, & Stinglhamber, 2004), and leadership styles (Zehir, Sehitoglu, & Erdogan, 2012) have been shown to affect employees' emotional attachment to leaders. Furthermore, Chen et al. (2002) define the attachment to leaders as one of the five dimensions of loyalty to leaders. Similarly, Jiang & Cheng (2008) propose that attachment to leaders can be considered a form of affect-based loyalty. In this stream of research, leaders' trustworthiness, ethical behavior, supportiveness (Wong, Wong, & Ngo, 2002) and leadership styles (Okan & Akyüz, 2015; H. Wang, Lu, & Liu, 2015) are considered to be factors influencing the formation of attachment emotion to leaders.

Leaders and Involvement. Involvement, often used interchangeably with participation in organizational behavior research (Glew, O'Leary-Kelly, Griffin, & Van Fleet, 1995; Shadur et al., 1999), describes employees' meeting attendance, collaboration with colleagues, and expression of opinions influencing organizational decisions (Glew et al., 1995). We contend that leaders influence employees' participation in organizational activities for the following reasons. First, Glew et al. (1995) define participation as a conscious and intended effort of people in higher positions in an organization to provide extra-role opportunities for those in lower positions to express opinions about organizational operations. Therefore, in essence, it is the leaders who facilitate activities and enable participation. Leaders design participation programs and initiate interventions to encourage employee involvement (Glew et al., 1995). Second, Glew et al. (1995) suggest that leaders' characteristics—for example, their personality, demographic variables, preferences for involvement, tolerance to uncertainty and ambiguity—affect their tendencies to initiate employee participation. Furthermore, leaders can facilitate employee involvement in specific organization activities, such as information sharing, decision- making, teamwork, and interventions (such as training programs and lectures) (Safa et al., 2016). Specific leadership style has been found to have a significant impact on all these activities (Y. F. Chen & Tjosvold, 2006; De Vries, Bakker-Pieper, & Oostenveld, 2010; James R Detert & Burris, 2007; Ofori, 2009; Popper & Lipshitz, 2000). Research has demonstrated that a leader's communication style affects employee knowledge-sharing behavior (De Vries et al., 2010). Managerial openness has been found to motivate employees' voice behavior (James R Detert & Burris, 2007), and research shows that the work climate cultivated by leaders mediates the impact of leaders on team collaboration (Huang, Kahai, & Jestice, 2010). Popper & Lipshitz (2000) offer an integrated analysis explicating the effects of leadership styles and their actions—including time devotion, attention, reward, and recognition—on the design of organizational learning mechanisms and agenda, which, in turn, affect employees' participation in learning programs.

Leaders and Commitment. Commitment is a rather broad concept that can take different forms, including affective commitment, normative commitment, and continuance commitment (Meyer & Allen, 1991; Meyer & Herscovitch, 2001; Meyer et al., 2002). It can also have different foci, such as an organization, a supervisor, or a course of action (Becker, Billings, Eveleth, & Gilbert, 1996; Meyer & Herscovitch, 2001). Regardless of the form and focus, commitment is, in essence, a force binding people to a target that is relevant to them (Meyer & Herscovitch, 2001). In the current research, we focus on employees' commitment to the goal of career success, an aspect of continuance commitment, in terms of facilitating organizational success. Evidence from previous studies supports the impact of leaders on employees' continuance

commitment at work. Past research shows that leaders' activities and behavioral styles influence employees' continuance commitment. For example, management receptiveness (Iverson & Buttigieg, 1999), management group cohesion (Wasti, 2003), supervisory mentoring (Payne & Huffman, 2005), leader-member exchange (Lo, Ramayah, Min, & Songan, 2010), leaders' ethical behaviors (Den Hartog & De Hoogh, 2009), supervisory support (Ko, Price, & Mueller, 1997), and the leadership style of initiating structure and consideration (Wallace, de Chernatony, & Buil, 2011) have all been found to exert significant effects on employees' continuance commitment. Researchers have also identified organizational factors that can affect employees' continuance commitment, such as general working conditions (Powell & Meyer, 2004), job environment (Park & Rainey, 2007), procedural justice (Moorman, Niehoff, & Organ, 1993), decision-making policies (Abubakr & Paul, 2000), performance and reward system (Abubakr & Paul, 2000; Moorman et al., 1993), training (Moorman et al., 1993) and career development system (Clugston, 2000), job design (Clugston, 2000), promotion policy (Park & Rainey, 2007; Wasti, 2003), and other human resource management strategies (Gong, Law, Chang, & Xin, 2009). We argue that all these organizational factors can be impacted by the leaders who serve as policy makers and possess the power to determine overall working conditions (Stinglhamber & Vandenberghe, 2003). As such, leaders play an important role in shaping the work environment in a way that can motivate or demotivate employees to become committed to organizational success.

Leaders and Beliefs. Personal beliefs in organizational norms describe employees' beliefs about whether they should comply with organizational rules (Schroeder, 2016). Such personal beliefs are also known as personal norms (e.g. Ifinedo, 2014; Safa et al., 2016), defined as one's self-expectations regarding certain actions toward which one feels a sense of obligation (Schwartz, 1977). Leaders can influence the formation of personal beliefs about complying with organizational rules in several ways. For one thing, employees' normative beliefs may largely depend on the leaders who are the norm advocators or rule makers (Wiatrowski et al., 1981). Whether or not leaders are considered trustworthy, fair, and competent will affect employees' beliefs about the norms. In many cases, leaders have the power to determine the content of norms and how they are applied. Therefore, leaders' attention to ensuring a fair and just procedure concerning the establishment of norms may affect employees' views about the moral validity of the norms (De Cremer & Van Knippenberg, 2002). Furthermore, personal norms may originate from employees' social interactions in which leaders can have a significant influence (Schwartz, 1977). During interactions, leaders express their expectations as well as use promises, threats, punishments, and rewards to arouse and reinforce employees' beliefs about their obligations and how they should behave in the context of the organization (Schwartz, 1977). Finally, according to the norm activation theory proposed by Schwartz (1977), a sense of obligation to perform certain behaviors is activated by one's awareness of consequences and the extent to which one ascribes responsibility to him- or herself. Leaders are often seen as offering the information necessary to activate employees' sense of obligation. For example, in information security issues, leaders may adopt security education, training and awareness (SETA) programs to stress the severity of IT threats and convey their expectations to each employee about how to cope with IT security management (D'Arcy, Herath, & Shoss, 2014; Hu et al., 2012; Siponen, Pahnila, & Mahmood, 2010). In all, leaders have the capacity to exert a significant impact on employees' formation of beliefs regarding compliance with organizational norms.

3 Research Model and Hypotheses

Based on the literature of PL, SBT, and ISP compliance, we develop a research model to explain how PL influences ISP compliance through the mediation of the social bond (see Figure 1). In the following, we propose and discuss a number of hypotheses.

3.1 Paternalistic Leadership and ISP Compliance Intentions

Authoritarian leadership emphasizes leaders' authority and strict control and subordinates' unquestioned obedience (Wiatrowski et al., 1981). Researchers (Farh & B.-S. Cheng, 2000; Farh et al., 2000) have found that authoritarian leadership is positively related to employee compliance. Cheng et al. (2004) explain that employees comply in this context because of role-based fear and a desire to conform to a leader's power. Clearly, the impact of authoritarian leadership on compliance is likely valid in the information security context. Since information security is non-value-adding aspect of organizational operations with no direct benefits for the individual, there may be conflicts between employees and ISP compliance in work routines, making employees unwilling to comply (B. S. Cheng et al., 2004). The requirement of complete obedience enforced by the threat of severe punishment from authoritarian leaders would clearly reduce employee reluctance to comply with ISP (M. Chan et al., 2005; Xue et al., 2011). In other words, subordinates of authoritarian leaders understand that they must comply with ISP regardless of their self-evaluation of the situation and even in the face of difficulties (Farh et al., 2000). Orders from authoritarian leaders are interpreted as must-do tasks by employees (Farh & B.-S.Cheng, 2000). Even if

employees feel incompetent to use new or complex technology in the context of ISP compliance, such employees will still try their best to comply with ISP in order to fulfill the demands of authoritarian leaders (Pittman & D'Agostino, 1985). Furthermore, authoritarian leaders use punishment to control employees' behavior (S. C. Chan, Huang, Snape, & Lam, 2013). Employees show conformity to avoid harsh punishments imposed by authoritarian leaders (S. C. Chan et al., 2013; Farh et al., 2000). Since IT-related noncompliance can be tracked through technology monitoring and surveillance, authoritarian leaders who impose harsh punishments would serve as deterrence to avoiding ISP compliance (Aryee & Zhen Xiong, 2006; A.-C. Wang et al., 2013; Zhang et al., 2015). Therefore, we propose that,

H1: Authoritarian leadership positively influences employees' ISP compliance intentions.

Benevolent leaders, in contrast, show holistic concern for their subordinates and are devoted to improving employee well-being both at work and at home. Subordinates, therefore, are likely to comply with leaders' regulations and policies out of a sense of gratitude (S. C. Chan et al., 2013). Leadership literature has demonstrated that benevolent leaders make employees more compliant (B. S. Cheng et al., 2004). We infer that leaders' benevolence also motivates employees to comply with ISP for a number of reasons. Benevolent leaders value the voices of their subordinates and encourage bottom-up communications (B. S. Cheng et al., 2004; Farh et al., 2004; Pellegrini & Scandura, 2008). They are willing to offer detailed explanations to eliminate subordinates' doubts and concerns regarding issues such as whether the ISP is necessary, and they are interested in explaining how subordinates should comply with ISP in a specific way (S. C. Chan et al., 2013; S. C. Chan, 2014). Benevolent leaders are also likely to offer coaching and task-related resources to help subordinates accomplish tasks (Schweiger & Denisi, 1991; Zhang et al., 2015). When employees are required to use new or complex technology for ISP compliance, training and prompt assistance should greatly reduce the behavioral barrier experienced by subordinates in the form of anxiety or self-doubt (L. Chen et al., 2015; Wendt, Euwema, & van Emmerik, 2009). Furthermore, benevolent leaders are devoted to taking care of their subordinates by fulfilling their needs and facilitating their career development (Farh, Liang, Chou, & B.-S. Cheng, 2008; A.-C. Wang & B.-S. Cheng, 2010; Zhang et al., 2015).

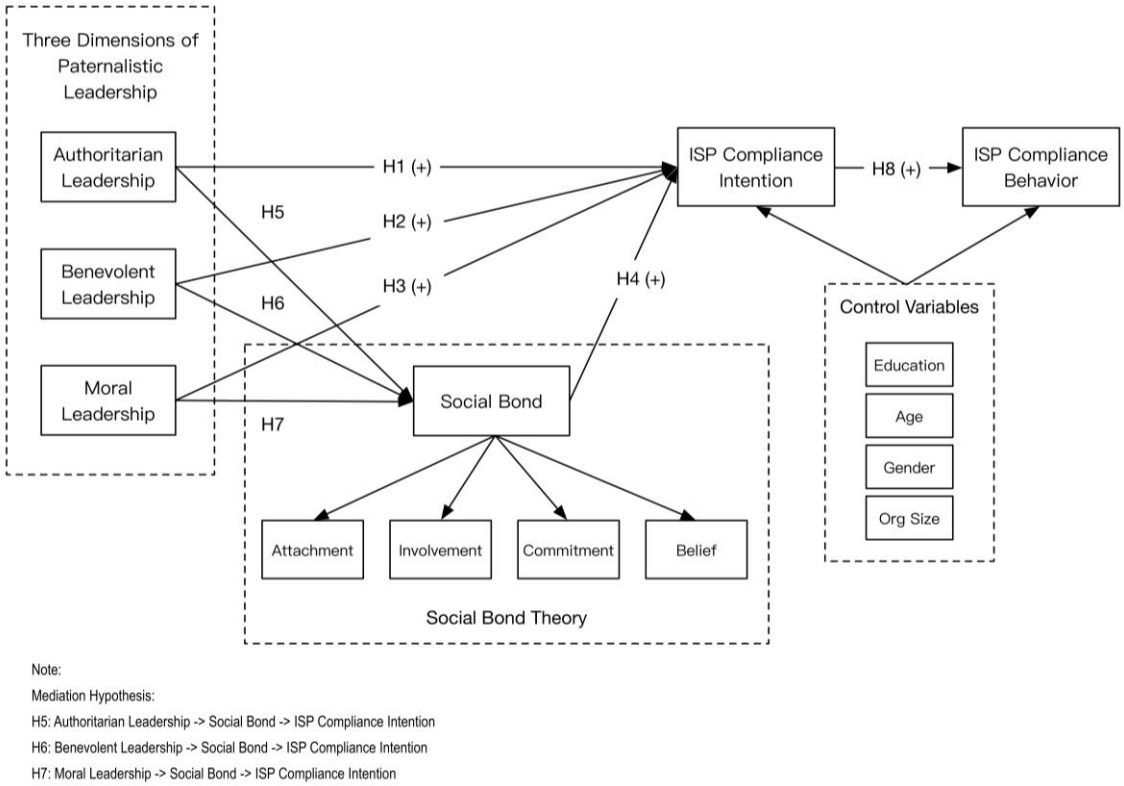

Figure 1. Research Model

Subordinates of benevolent leaders are more likely to perceive self-worth within their organizations and believe that their contributions are important (S. C. Chan et al., 2013; X. P. Chen et al., 2014; Zhang et al., 2015). Therefore, such subordinates will feel obliged to comply with ISP to protect organizational interests (Zhang et al., 2015). One reason for employees' noncompliance to ISP is that it may impede their daily work, thus affecting their performance (Liang et al., 2013). Benevolent leaders, who are willing to investigate the cause of performance problems (X. P. Chen et al., 2014; Konovsky & Pugh, 1994; Tyler & Blader, 2003), are more likely to understand and accept the performance changes introduced by ISP compliance and are less likely to hold subordinates responsible. Therefore, such employees may feel less concerned about interrupting their work to comply with ISP. Thus, we propose that:

H2: Benevolent leadership positively influences employees' ISP compliance intentions.

Moral leaders demonstrate integrity and unselfishness (S. C. Chan et al., 2013; Farh et al., 2000; Pellegrini & Scandura, 2008). They treat subordinates fairly and avoid taking advantage of them (Farh et al., 2000). Subordinates regard moral leaders as role models (Niu et al., 2009) and show compliance out of respect and identification (Farh et al., 2000; Niu et al., 2009; Pellegrini & Scandura, 2008). We argue that moral leaders affect employees' ISP compliance in the following ways: First, moral leaders are willing to sacrifice their own interests for their subordinates and the collective (B. S. Cheng et al., 2004; Grojean, Resick, Dickson, & Smith, 2004). Farh et al. (2000) argue that moral leaders cultivate an ethical climate encouraging subordinates to value group interests instead of personal gain or loss (L. Chen et al., 2015). Therefore, subordinates will likely comply with ISP to support organizational interests even if it requires extra effort or impedes their work. Second, employees identify with their moral leaders on the basis of their integrity and altruism (Y. C. Wu & Tsai, 2012) and internalize the inner values and goals of their moral leaders (Pellegrini & Scandura, 2008). Thus, subordinates of moral leaders are likely to be willing to comply with ISP because they can understand their leaders' concern for information security and agree with their decisions. Moreover, employees may resist complying with ISP because they consider it to be an extra-role task that does not contribute to their performance, particularly because ISP success is manifested in the nonoccurrence of incidents (M. Y. Cheng & L. Wang, 2015). Chan et al. (2015) posit that moral leaders incur reciprocal leader-subordinate interactions, in which, employees reciprocate by fulfilling both their in-role and extra-role obligations (Colquitt, Scott, & LePine, 2007). Thus, employees are willing to spend time and energy on ISP compliance even though it may go beyond their job duties (M. Wu, Huang, & S. C. Chan, 2012). Therefore, we propose that:

H3: Moral leadership positively influences employees' ISP compliance intentions.

3.2 Social Bond and ISP compliance Intention

According to social bond theory (SBT), individuals are unlikely to violate ISP if they feel attached to their leaders, have high involvement in organizational activities, are committed to their work, and hold strong beliefs of organizational norms (X. P. Chen et al., 2014; Konovsky & Pugh, 1994). While employees may not always sense the urgency of complying with ISP and fear that their work pace may be affected by the extra efforts necessary to ensure ISP compliance (Y. Chen et al., 2012; Liang et al., 2013), when employees feel attached to leaders, they may prioritize their leaders' requirements comply with ISP in order to fulfill their leaders' expectations (Hirschi, 1969). According to SBT, the more that employees participate in group activities, the stronger ownership they may feel for their organization, which will encourage a sense of obligation among employees to follow the requirements in ISP in order to protect their organizations (Hirschi, 1969; Hollinger, 1986). High involvement also makes employees better capable of understanding the nature of information security threats and the purpose of ISP and can promote their ability to handle ISP-related technology, which can, in turn, increase their intentions to comply with it (Safa et al., 2016). Employees committed to personal and organizational success invest a great deal of time and energy to the pursuit of success and will thus seek to avoid deviant behaviors that may threaten their reputation and achievements (Hirschi, 1969). Since IT security attacks and information breach incidents often cause severe losses to companies, employees who invest a lot in their work may voluntarily comply with ISP to secure their own career interests. According to Posey et al. (2015), employees who believe strongly in social norms will be less likely to engage in deviant behaviors. Since the success of information security practice is manifested in the nonoccurrence of incidents (M. Chan et al., 2005), employees may easily deprioritize ISP compliance in the face of other work demands. However, employees strongly attached to organizational norms will nevertheless feel obliged to follow all the organizational policies and be more willing to comply with ISP.

H4: Employees' sense of a social bond with their organization positively influences their ISP compliance intentions.

3.3 Social Bond as Mediator

We propose that the social bond mediates the effect of authoritarian leadership on ISP compliance intentions for a number of reasons. Authoritarian leadership can weaken employees' emotional attachment to their leaders (Hirschi, 1969) because authoritarian leaders stress their authority and absolute power, which distances subordinates emotionally from them (L. Chen et al., 2015; X. P. Chen et al., 2014; M. Wu, Huang, Li, et al., 2012). The strict rules set by authoritarian leaders can cause employees to feel uncared for, stressed, and anxious (Y. C. Wu & Tsai, 2012). Therefore, it is generally difficult for employees to develop attachment to authoritarian leaders. Moreover, authoritarian leaders only focus on doing things according to their own predilections and tend to pay little attention to subordinate voices (Niu et al., 2009). Therefore, authoritarian leaders tend to cultivate an uncaring work environment that impairs subordinates' feelings of attachment to them. (M. Wu, Huang, Li, et al., 2012)

Furthermore, employees' involvement in conventional activities can be reduced by authoritarian leadership. For employees, there are two types of conventional group activities associated with the workplace: work-related activities (e.g., business meetings) and casual activities after work (e.g., playing sports). Authoritarian leaders who only emphasize high performance at work ignore the needs of their subordinates (Y. C. Wu & Tsai, 2012) and thus are unlikely to organize casual activities to help subordinates release work stress and increase group cohesion. At work, authoritarian leaders tend to control discussions and ignore the opinions of their subordinates (S. C. Chan et al., 2013). Though employees are required to attend the meetings, their participation tends to be passive and their sense of involvement is generally low.

Authoritarian leaders can also impede their subordinates' commitment to personal and organizational success. For instance, authoritarian leaders may be too autocratic to give subordinates sufficient job autonomy, which often makes employees feel discouraged and reinforces rigidity at work (Farh & B.-S. Cheng, 2000; M. Wu, Huang, & S. C. Chan, 2012). Authoritarian leaders tend to stress performance but offer little help in overcoming the difficulties encountered by their employees (C. C. Chen, 2013; Niu et al., 2009; Y. C. Wu & Tsai, 2012). Employees may feel frustrated when they face difficulties and challenges at work, and the harsh control exercised by authoritarian leaders may even impair employees' self-esteem and feelings of competency (S. C. Chan et al., 2013; Ferris, Brown, & Heller, 2009), thereby also decreasing employees' aspiration for personal career success. Such employees are thus also unlikely to be committed to organizational success.

Finally, authoritarian leadership tends to reduce employee beliefs in norms. Employees generally believe in organizational norms if they consider them to be fair and legitimate (C. C. Chen, 2013). Since authoritarian leaders make decisions in a top-down manner and mostly disregard the opinions of their subordinates (Hirschi, 1969), employees may perceive norms to be unilateral and decision-making as unfair (Y. C. Wu & Tsai, 2012). While such employees may comply with norms to avoid punishment (Pellegrini & Scandura, 2008; Y. C. Wu & Tsai, 2012), they are unlikely to believe in the organizational norms set by authoritarian leaders.

In summary, we argue that authoritarian leadership exerts a negative influence on employees' sense of a social bond within their organizations. As we have argued in H4, the social bond positively influences employees' ISP compliance intentions (L. Cheng et al., 2013; Safa et al., 2016). If authoritarian leaders promote norms in autocratic ways (Y. C. Wu & Tsai, 2012), treat their employees in a demanding way (Farh et al., 2006), discourage employee involvement in organizational activities (S. C. Chan et al., 2013), and stifle interest in career development (M. Wu, Huang, & S. C. Chan, 2012), and), this will result in low social bond perceptions among employees, making them more likely to engage in deviant behaviors (Hirschi, 1969) and diminishing intentions to comply with ISP. Hence, based on the above analysis and H4, we propose that:

H5: Authoritarian leadership has a negative indirect influence on employees' ISP compliance intentions via mediation of the social bond.

The social bond also mediates between benevolent leadership and ISP compliance intentions. Employees tend to develop attachment to benevolent leaders who offer guidance and support to help them fulfill their potential (S. C. Chan et al., 2013; Farh & B.-S. Cheng, 2000). Benevolent leaders are generally sensitive and caring (S. C. Chan, 2014; M. Wu, Huang, & S. C. Chan, 2012); thus, when employees encounter problems, benevolent leaders are generally willing to help them solve their problems (Farh & B.-S. Cheng, 2000). Through high-quality leader-member exchange, research has demonstrated that subordinates form strong emotional bonds with benevolent leaders (Pellegrini & Scandura, 2008).

Employees also tend to be more willing to participate in group activities organized by benevolent leaders because it is pleasant to interact with them (L. Chen et al., 2015; Wendt et al., 2009). Benevolent leaders value employees' opinions (Pellegrini & Scandura, 2008; Y. C. Wu & Tsai, 2012), and when employee suggestions are incorporated into organizational

decisions, employees feel they are important to the organization (L. Chen et al., 2015; X. P. Chen et al., 2014; Wendt et al., 2009). Benevolent leaders are also more likely to initiate extracurricular activities, allowing them to mingle with their subordinates and strengthening interpersonal relationships (Zhang et al., 2015).

Employees tend to have higher levels of job commitment when their leaders are benevolent. Benevolent leaders try to support the long-term development of their employees (X. P. Chen et al., 2014) by helping employees set career goals to fully develop their potentials and realize their self-worth (A.-C. Wang & B.-S. Cheng, 2010). Under benevolent leaders, employees are likely to be motivated to work harder and invest more energy in their jobs because they trust benevolent leaders to fairly evaluate and reward their performance (X. P. Chen et al., 2014). Benevolent leaders offer resources and training to enhance employees' professional skills and help them overcome difficulties (S. C. Chan, 2014; Zhang et al., 2015), which reduces employees' job-related stress and increase their confidence at work (S. C. Chan, 2014). To reciprocate their leaders' benevolence, employees are committed to high job performance and support organizational success to live up to their leaders' expectations (Mussolino & Calabro, 2014).

Benevolent leadership also strengthens employees' beliefs in organizational norms. Employees tend to believe that benevolent leaders will treat them with good intentions and do them no harm (S. C. Chan, 2014). Therefore, employees generally trust benevolent leaders and believe that the policies and rules advocated by benevolent leaders are well-designed and reasonable. Benevolent leaders typically allow employees to participate in the policy making process and are willing to incorporate their suggestions into final decisions, thus making the policies more palatable to employees (Farh & B.-S. Cheng, 2000; M. Wu, Huang, Li, et al., 2012). Additionally, benevolent leaders seek to help employees better understand and follow regulations and policies. For example, software training before implementing ISP can help employees reduce anxiety concerning the use of an unknown technology and guide employees to behave properly (L. Chen et al., 2015), thus encouraging employees to develop positive attitudes toward following organizational norms.

In summary, benevolent leadership can increase employees' sense of a social bond within their organization. As argued in H4, the social bond can positively influence employees' ISP compliance intentions (L. Cheng et al., 2013; Safa et al., 2016). Logically, benevolent leaders will have a positive indirect effect on employees' ISP compliance intentions by fostering a work environment that facilitates the formation of a social bond among employees, which positively relates to employees' intentions to comply with ISP. During daily interaction with employees, benevolent leaders treat employees respectfully (Farh et al., 2006; J.-L. Farh & Cheng, 2000), encourage them to participate organizational activities (Zhang et al., 2015), guide their career development (X. P. Chen et al., 2014), and promote reasonable norms in organizations (M. Wu, Huang, Li, et al., 2012), which facilitates the development of social bond perceptions among employees. Such perceptions deter employees' from engaging in deviant behavior (Hirschi, 1969) and support ISP compliance. Thus, based on H4 and the above analysis, we propose that:

H6: Benevolent leadership has a positive indirect influence on employees' ISP compliance intentions via mediation of the social bond.

Similarly, the social bond mediates the effect of moral leadership on ISP compliance intentions. Subordinates are attracted to moral leaders because of the leaders' morals (S. C. H. Chan, 2014). When leaders have high moral standards and are devoted to serving subordinates, employees tend to think their leaders are reliable and trustworthy (Pellegrini & Scandura, 2008). Subordinates admire moral leaders and identify with them (M. Wu, Huang, Li, et al., 2012). Researchers have found that the ethical virtues of leaders facilitate emotional bonds between leaders and subordinates (B. S. Cheng et al., 2004).

Moral leaders also tend to respect the rights of employees to participate in organizational activities and allow them to voice opinions, which enhances their sense of participation (X. P. Chen et al., 2014; French, Raven, & Cartwright, 1959). Thus, such employees tend to be more motivated to take part in organizational activities. Since moral leaders are regarded as role models (S. C. Chan, 2014), employees are often willing to participate in group activities to learn from their leaders (X. P. Chen et al., 2014). When moral leaders demonstrate duty, loyalty, and moral obligation to their organizations (M. Wu, Huang, & S. C. Chan, 2012), employees will often also feel obligated to actively participate in work activities and make contributions to the organization.

Moral leadership enhances employees' commitment to support organizational success. When employees make valuable contributions, moral leaders will give them the credit they deserve (Erben & Guneser, 2008; Farh & B.-S. Cheng, 2000; Y. C. Wu & Tsai, 2012). Therefore, this will likely increase employee motivation to perform better. Moral leaders typically support fair competition among employees, which is necessary for employees' career development (H. Y. Chen & Kao, 2009; Erben & Guneser, 2008; M. Wu, Huang, Li, et al., 2012). In such an environment, employees are likely to believe that helping the

organization succeed will help them succeed as well. Thus, such employees are often willing to invest more effort to facilitate organizational success (M. E. Brown, Treviño, & Harrison, 2005).

Moral leaders generally focus on ethics rather than hierarchical control, which makes employees more likely to believe that the policies and norms proposed by them are virtuous and reasonable (H. Y. Chen & Kao, 2009). Employees of moral leaders tend to perceive that decision-making processes are open and fair (Farh & B.-S. Cheng, 2000; Y. C. Wu & Tsai, 2012). Employees typically trust moral leaders and tend to believe that their moral leaders will not design policies or regulations to take advantage of them (H. Y. Chen & Kao, 2009; Niu et al., 2009). Employees also tend to identify with their moral leaders and internalize their values (H. Y. Chen & Kao, 2009; Erben & Guneser, 2008; Niu et al., 2009). As such, employees are likely to accept the organizational norms advocated by moral leaders.

In short, moral leaders facilitate the formation of the social bond between employees and their organization. In H4, we proposed that social bond positively relates to employees' ISP compliance intentions (L. Cheng et al., 2013; Safa et al., 2016). Hence, we argue that moral leadership has a positive indirect influence on employees' ISP compliance because they can facilitate the formation of a social bond, which positively influences employees' intentions to comply with ISP. During daily interactions, moral leaders treat their employees in a virtuous way (Farh et al., 2006; Farh & B.-S. Cheng, 2000), respect employees' opinions and cultivate participate in organizational activities (X. P. Chen et al., 2014), help employees' develop their careers (Erben & Guneser, 2008), and model a high level of morality to employees (H. Y. Chen & Kao, 2009). All these behaviors can increase employees' social bond perceptions, making them less likely to perform deviant behaviors (Hirschi, 1969), thus decreasing employees' intentions to violate ISP. Hence, based on H4 and the above analysis, we hypothesize that:

H7: Moral leadership has a positive indirect influence on employees' ISP compliance intentions via the mediation of the social bond.

3.4 Compliance Intention and Actual Compliance Behavior

IS security research has called for more attention to studying individuals' actual security behaviors (M. Y. Cheng & L. Wang, 2015). Therefore, we include actual ISP compliance behavior in the research model. The existing IS security literature offers substantial evidence that individuals' behavioral intentions predict their actual behavior (Boss, Galletta, Lowry, Moody, & Polak, 2015; Crossler & Bélanger, 2014). Therefore, we propose that:

H8: Employees' ISP compliance intentions are positively related to their actual ISP compliance behaviors.

4 Method

4.1 Construct Operationalization

We used the survey method to test our model and developed measurements based on the existing literature. Some wording modifications were made to adapt the questions to the current research context. All of the constructs are reflective constructs and were measured using seven-point Likert scales as shown in Appendix A. Since the survey was conducted in China, we created an English questionnaire and translated it to Chinese by following the conventional back-translation method (Brislin, 1980). To ensure content validity, we conducted a pretest by using ten PhD students majoring in information systems to check the accuracy of the translation and make sure the items were comprehensible.

We measured PL using by the widely adopted scale developed by Farh et al. (2000) and B.-S. Cheng et al. (2004). This scale measures PL according to three aspects, authoritarian leadership (AL), benevolent leadership (BL) and moral leadership (ML). We assumed each PL dimension to be a continuous variable and asked respondents to assess the extent of their supervisor's leadership style.

The relationships between PL and its three dimensions suggest that PL is an aggregate multidimensional construct, i.e., a second-order formative construct. Different from a superordinate construct (i.e., second-order reflective construct) manifested by its subdimensions whose shared variance is of interest to the researchers, an aggregate construct is a composite of its subdimensions and all the variances of its subdimensions are of interest (Polites, Roberts, and Thatcher, 2012). In our research, PL is considered as an aggregate construct because it is composed of AL, BL, and, ML rather than a higher-level construct reflected by AL, BL, and ML.

Our research, like most PL research, adopted the dimension set of PL instead of considering PL as a second-order construct (e.g. S. C. Chan, 2014; Chen, Eberly, Chiang, Farh, & B.-S. Cheng, 2014; Zhang, Huai, & Xie, 2015). According to Polites et al. (2012), multidimensional constructs may cause ambiguity, low explanatory power, and reliability and validity issues. They suggest that these challenges could be addressed

by using the dimension set.[1] In our research, PL, as a second-order construct, is too broad and will cause ambiguous results. Prior research shows that AL negatively relates to BL and ML and is also negatively associated with subordinates' outcomes such as satisfaction with leaders and organizational citizenship behavior (B.-S. Cheng, Shieh, & Chou, 2002; Pellegrini & Scandura, 2008), while BL and ML are often found to positively associate with these outcomes. Therefore, if we had adopted the overall PL concept, the effect of these dimensions may have been neutralized by each other, and the distinct impact of each PL dimension would have been omitted. Even if we had observed a statistically significant relationship between the overall PL concept and an outcome, it would have been difficult to interpret the results without referring to each PL dimension for insight. Therefore, we prefer the dimension set of PL to an overall PL construct.

For data accuracy considerations, we only asked the respondents to report the PL of their direct supervisor. because direct supervisors have the most frequent interactions with their subordinates (Detert & Treviño, 2010; Mayer & Gavin, 2005). Furthermore, they should be familiar with their subordinates' needs, can offer concrete help (Niehoff, Enz, & Grover, 1990), and generally have the most direct impact on subordinates (Mayer & Gavin, 2005). Past research has stressed the importance of direct supervisors in implementing organizational managerial practices and in mediating the effect of higher-level managers (James R. Detert et al., 2010; Mayer & Gavin, 2005), and it is also common practice in the PL literature to study the impact of direct supervisors' PL (e.g. S. C. Chan, 2014; B. S. Cheng et al., 2004; Erben & Guneser, 2008).

We developed a scale measuring social bond adapted from previous studies by Ifinedo (2014), S. M. Lee et al. (2004), and Herath and Rao (2009). Since social bond (SB) can be considered as a latent construct accounting for the covariance among the specified dimensions of the (Costello & Vowell, 1999; Hirschi, 1969), we consider social bond (SB) to be a second-order construct measured by four first-order constructs: attachment (SBA), involvement (SBI), commitment (SBC) and personal belief (SBP). Polites et al. (2012) suggest that if the facets of a construct are unobservable concepts that are not directly measurable by observed indicators, then this construct should be conceptualized as multidimensional. Wiatrowski & Anderson (1987) demonstrate that social bond as a unidimensional construct fits poorly to data. MacKenzie et al. (2005) argue that if the construct is the focus of the study, then it is better to create a measurement model with all critical conceptual distinctions than to use a simple first-order construct. We chose the second-order model of social bond instead of directly using its dimensions because the essence of social bond theory is that it is the joint binding force derived from one's socialization in an environment that prevent delinquency, rather than a collection of variables related to delinquency (Costello & Vowell, 1999; Wiatrowski & Anderson, 1987). Past research has treated social bond as a second-order construct and demonstrated the validity of this approach (Costello & Vowell, 1999; J. A. Ford, 2005; Nakhaie, Silverman, & LaGrange, 2000).

We adopted the scale from Bulgurcu et al. (2010) to measure ISP compliance intention (CI). We measured actual ISP compliance behavior (CB) by asking the respondents to report the frequency and the number of their ISP compliance violations. The item measuring the number of ISP violations was deleted due to low factor loading. For half of the respondents, we also asked their direct supervisors to rate their compliance behavior. Such leader-reported behavior data were combined with self-reported compliance behavior data to calculate the average score for compliance behavior, which is believed to be a more accurate means of measuring actual behavior than either leader- or employee-reported data alone (Burton-Jones, 2009).

To control for common method bias, we measured social desirability (SD) (Ajzen, 1991) using items developed by Reynolds (1982). We used age, gender, education level, and organization size as control variables.

4.2 Data Collection

We collected data in China where PL is prevalent and IT security threats are prevalent (Farh & B.-S. Cheng, 2000; Farh et al., 2008). According to the newest Internet Security Report by Tencent, the largest internet service provider in China, there were more than 183 million malicious websites in China and more than one billion blocked virus attacks during the first half of 2017 (*Tencent Internet Security Report for the First Half of 2017*, 2017). In 2016, Net Ease, one of the top five Internet companies in China leaked the data of more than one hundred million users. In the same year, China's second-largest e-commerce company, JD.com, admitted that 12 GB of data involving over 10 million users were divulged due to security loopholes in their information system.

We collected data from 13 companies, four government agencies, 10 MBA classes and four

[1]Pellegrini and Scandura (2008) offer a systematic discussion about why it is more appropriate to adopt the dimension set of PL instead of considering it as a second-order construct. Due to space limitation, we recommend the readers to read their paper for further information.

executive development programs (EDP) in China across six provinces. We held brief interviews with the companies before collecting data, and all the managers confirmed that their organizations have some type of formal or informal ISP. We sent out 1078 questionnaires and 760 of them were returned with complete and valid answers. Among the 760 questionnaires, 55% were from the 13 companies and 9% from the four government agencies. The other 36% were from MBA and EDP students of a major Chinese university, all of whom were currently employed or had at least had three years of work experience. Since the 13 companies are located in six different provinces in China and have offices located in different cities, all the data were collected via electronic questionnaires. Respondents could choose to take the survey either on a smartphone or computer. Respondents from the government agencies and the MBA and EDP programs with fixed physical locations were given paper-based questionnaires.

From the 13 companies, we collected 314 paired data dyads with actual compliance behavior reported by both the respondents and their supervisors. To collect these data, we first asked respondents to provide the name of their direct supervisor (choosing one in cases of multiple supervisors) and to answer the questionnaire according to this supervisor's behavior. Then, respondents were asked to report their own ISP compliance behavior. With the help of HR departments, we sent questionnaires to the supervisors named by the respondents. Supervisors were asked to report the actual compliance behavior for each of his or her subordinates. To reduce the potential bias caused by single-source, self-reported data, we used the 314 paired dyads for model testing. The actual compliance behavior was computed as the average score of the self-reported and the leader-reported compliance behavior (see further discussion in Appendix E).

The detailed demographic information of the 314 subordinate respondents can be found in Appendix B. Specifically, 37.6% of the respondents were female, 96.2% were less than 50 years old, 90.4% had at least a college degree, 78.7% had less than five years of work experience, and 98.7% held a middle- or basic-level position. Their organizations operate in nine different industries and 92.7% are small to medium companies with less than 500 employees. Among these organizations, 22.6% are state owned, 41.1% are privately owned, 0.6% are collective owned, and 32.2% are shareholding companies.

5 Results

5.1 Common Method Bias

Common method bias (CMB) occurs when the covariance of data is caused by method rather than the theoretical relationship among constructs and can have serious impacts on the observed relationships between constructs of research interests (Liang et al. 2007). We follow the suggestions of P. M. Podsakoff, MacKenzie, J.-Y. Lee, & N. P. Podsakoff (2003) and applied both procedural and statistical remedies to control CMB. Social desirability is identified as one major source of bias for this research. We adopted the statistical method proposed by P. M. Podsakoff et al. (2003) to eliminate its effect. Furthermore, as a procedural remedy, we collected both self-reported and leader-reported ISP compliance behavior and used the average score of ISP compliance behavior in the model test (see detailed discussion in Appendix E).

5.2 Measurement Model

The Cronbach's alpha and the composite reliability values of each construct are both above 0.7, indicating sufficient reliability of our measurements (Burton-Jones, 2009; Chidambaram & Tung, 2005). Each construct's average variance extracted (AVE) is above 0.5, indicating that each construct accounted for at least 50% of the variance of its items. As Table 1 shows, the square root of AVE of each construct is greater than its correlations with other constructs, showing strong discriminant validity. We conducted a confirmatory factor analysis (CFA) using AMOS, which indicates that every item was significantly loaded on its assigned construct and the factor loadings were at least 0.59 (Appendix C), suggesting acceptable convergent validity (Nunnally, 1978).

The fit indexes of the CFA model indicate excellent fit between data and model ($\chi^2/\Delta f$ = 2.208, CFI = 0.921, TLI = 0.913, RMSEA = 0.062, SRMR = 0.0609), further supporting the validity of the measurements. The cross-loading table is provided in Appendix D, demonstrating good discriminant and convergent validity.

Social bond is a second-order construct. The factor loadings of four first-order subconstructs (attachment, involvement, commitment and personal belief) are 0.592, 0.973, 0.942 and 0.726, respectively, and all are significant. The lowest loading is 0.592, which is above the recommended minimum loading (0.4) for social sciences (J. K. Ford, MacCallum, & Tait, 1986). We conducted CFA to test whether the second-order social bond measurement model can best represent the relationships between social bond and its subdimensions. The second-order social bond model ($\chi^2/\Delta f$ = 2.239, CFI = 0.976, TLI = 0.968, RMSEA = 0.063, SRMR = 0.0312) showed better model fit than the model that considers social bond to be a first-order construct measured by the indicators of its subdimensions ($\chi^2/\Delta f$ = 6.915, CFI = 0.874, TLI = 0.846, RMSEA = 0.137, SRMR = 0.0736). This justifies our choice to define social bond as a second-order construct.

Table 1. Correlations among Major Constructs

Variable Name	AL	BL	ML	SB	CI	CB	SD
AL	**0.777**						
BL	-0.319	**0.84**					
ML	-0.318	0.552	**0.911**				
SB	-0.209	0.348	0.38	**0.878**			
CI	-0.138	0.292	0.367	0.552	**0.96**		
CB	-0.318	0.048	0.171	0.28	0.562	**0.951**	
SD	0.493	-0.192	-0.328	-0.361	-0.517	-0.706	**0.832**

Note:
The square roots of AVEs are bold.
CI = ISP compliance Intention, CB = ISP compliance Behavior, SD = Social Desirability

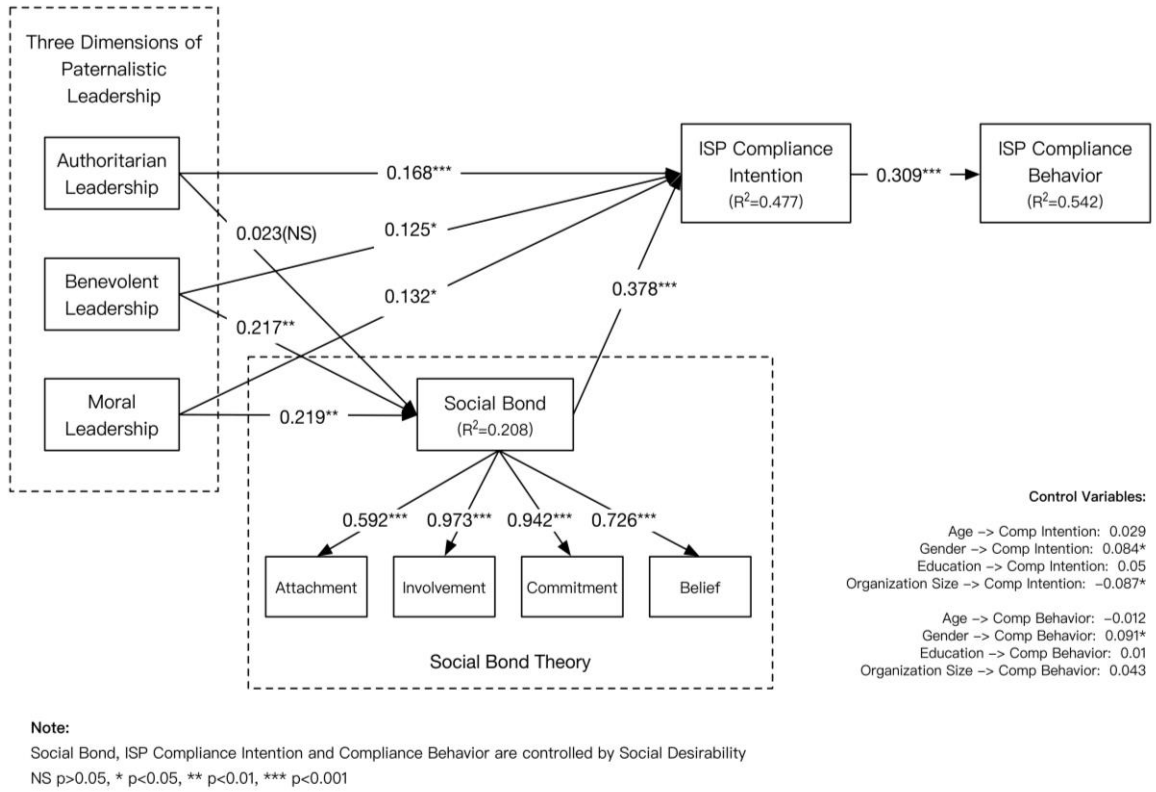

Figure 2. Model Testing Results

5.3 Hypothesis Testing Results

We used AMOS 22.0 to test the hypotheses. AMOS is a covariance-based structural equation modeling (CBSEM) method which models the measurement error variance structure and relies on a factor analytic measurement model to provide better estimation of measurement error. Parameter estimates by CBSEM are robust even when the data distribution assumptions are mildly violated (Hair, Anderson, Tatham, & Black, 1998). The AMOS results show excellent fit between data and model ($\chi^2/\Delta f = 1.73$, CFI = 0.942, TLI = 0.936, RMSEA = 0.048, SRMR = 0.0853). Detailed hypothesis test results are shown in Figure 2. These results are based on the SD controlled model. For visual clarity, we did not present SD in the figures.

As shown in Figure 2, the impact of authoritarian leadership, benevolent leadership, and moral leadership on employees' ISP compliance intentions are all significant and positive (for AL→COMP, $\beta = 0.168$, $p < 0.001$; for BL→COMP, $\beta = 0.125$, $p < 0.05$; for ML→COMP, $\beta = 0.132$, $p < 0.05$), which supports H1, H2, and H3. We also found social bond to have a significant and positive influence on ISP compliance intention ($\beta = 0.378$, $p < 0.001$). Therefore, H4 is supported. The link between ISP compliance intention and compliance behavior is significant and positive ($\beta = 0.309$, $p < 0.001$), which supports H8.

We also tested the path coefficients between PL dimensions and social bond. We found both benevolent leadership and moral leadership to have significant positive influences on social bond (for BL→SB, $\beta = 0.217$, $p < 0.01$; for ML→SB, $\beta = 0.219$, $p < 0.01$), while authoritarian leadership had no significant influence on social bond ($\beta = 0.023$, $p > 0.05$).

To test H4, H5, and H6, which propose the mediating role of the social bond, we conducted bootstrapping using AMOS to test the indirect effect of each PL dimension on ISP compliance intention (Preacher & Hayes, 2008). We found that the indirect effect of AL on compliance intention via social bond is not significant ($\beta = 0.006$, $p > 0.05$), which means the impact of AL on compliance intention is not mediated by social bond. Therefore, H4 is not supported. The indirect effect of BL on ISP compliance intention via social bond ($\beta = 0.047$, $p < 0.01$) and the indirect effect of ML on ISP compliance intention via social bond ($\beta = 0.054$, $p < 0.01$) are both significant. Therefore, H5 and H6 are supported. Since the direct effect of BL and ML are all significant with the existence of the social bond (for BL→COMP, $\beta = 0.125$, $p < 0.05$; for ML→COMP, $\beta = 0.132$, $p < 0.05$), such results suggest that social bond partially mediates the impact of BL and ML on compliance intention.

Most control variables had no significant effect on compliance intention or compliance behavior. An exception is organization size, which we found to have a significant negative influence on ISP compliance intention. In addition, we also found a significant impact of gender on both ISP compliance intention and compliance behavior. Female workers turned out to have higher levels of ISP compliance intention and compliance behavior than male workers.

5.5 Comparison with Alternative Models

Finally, we compared a series of alternative models to evaluate whether our research model is superior. We include protection motivation theory (PMT) as the benchmark and competing theory because it is a leading theory that is probably the most widely applied theory in behavioral information security research. We tested a total of six models: PL model, SBT model, PMT model, PL+SBT model (our research model), PL+PMT model (PMT variables as mediators between PL and compliance) and PL+SBT+PMT model (both SBT and PMT variables as mediators between PL and compliance). These models are shown in Figure F1-5 in Appendix F. Consistent with the existing literatures about model comparison (Boss et al., 2015; S. A. Brown, Venkatesh, & Hoehle, 2015; Venkatesh, Morris, Davis, & Davis, 2003), we examined the R-squared, beta weights, and model fit of each model. We also followed the model comparison method proposed by Merkle et al. (2016), which uses the Vuong's test (variance test and likelihood ratio test) and the confidence interval of the difference between AIC and BIC to statistically compare the model fit of different models. Detailed results are presented in Appendix F.

First, we compared the R-squared values of these models (see Appendix F, Table F1). We found that the inclusion of PL leads to higher explanatory power than the single theory model of PMT ($R^2_{PL+PMT} = 0.45$, $R^2_{PMT} = 0.389$) or SBT ($R^2_{PL+SBT} = 0.477$, $R^2_{SBT} = 0.427$). The PL+SBT model also explains variance more than the single PL model ($R^2_{PL+SBT} = 0.477$, $R^2_{PL} = 0.349$). Although Vuong's test and the confidence interval of difference between AIC and BIC showed that single theory models fit the data better, the model fit indices of combined theories only decreased slightly and are still acceptable (see Appendix F, Tables F2-F4).

Next, we replaced SBT by PMT in our research model and found that the PL+SBT model (our research model) explain more variance than the PL+PMT model ($R^2_{PL+SBT} = 0.477$, $R^2_{PL+PMT} = 0.45$). The result of Vuong's test and confidence interval of the difference between AIC and BIC also showed that the PL+SBT model fit the data better than the PL+PMT model ($p < 0.000$).

Finally, we tested the PL+SBT+PMT model. This model has a higher R-squared value than the PL+SBT model ($R^2_{PL+SBT+PMT}$ = 0.515, R^2_{PL+SBT} = 0.477). However, in the PL+SBT+PMT model, none of the PMT elements significantly impacted ISP compliance intention. This result indicates that the influence of PMT variables can be ignored when comparing with the impact of PL and SBT. Vuong's test and the confidence interval of the difference between AIC and BIC showed that the PL+SBT model fit better than the PL+SBT+PMT model ($p < 0.000$). As illustrated by Table F2 in Appendix F, the model fit of the latter model is actually worse. Overall, the post hoc model comparison demonstrates the superiority of our research model with more variance explained in the dependent variable and better fit with the data. We also conducted bootstrapping to test the mediation effect of PMT elements between PL and ISP compliance. The results indicate that PMT elements do not mediate the impact of PL on ISP compliance (see Table F5 in Appendix F).

6 Discussion

This research aims to investigate whether PL can influence employees' compliance intentions in the IT security context and, if so, how this happens. We chose social bond theory as the theoretical lens to elaborate how PL influences employees' ISP compliance by shaping their sense of a work-based social bond. As our findings show, each of the three PL dimensions and the social bond construct can directly enhance ISP compliance. In addition, the effects of BL and ML on ISP compliance are partially mediated by social bond while the indirect effect of AL is not significant. The mediation effect of the social bond suggests that the routine behaviors of leaders, though seemingly unrelated to information security practices, can also affect employees' ISP compliance by contributing to the formation of a social bond among employees.

Contrary to our expectation, AL shows no significant indirect effect on ISP compliance through social bond. As we can see in Figure 2, the link from AL to social bond is not significant. This could be explained by positive effects of AL that neutralize the negative effects proposed by our hypothesis. For instance, it is possible that subordinates do form emotional attachments to authoritarian leaders. Some subordinates may consider their demanding standards and strict leadership style to be valuable for their career development and may appreciate leaders who push them to challenge themselves and discover their potentials. In terms of commitment and involvement, authoritarian leaders may use mandatory demands to ensure that employees participate in organizational activities, work hard, and thus improve performance (Farh et al., 2006; Farh et al., 2000). Regarding employee beliefs in organizational norms, authoritarian leaders stress the absolute power of leaders and may thereby persuade subordinates of the legitimacy of the organizational norms they propose (S. C. Chan et al., 2013). Authoritarian leaders may also utilize control strategies such as reward and punishment to reinforce employee beliefs about their obligations (Zhang et al., 2015). Another plausible explanation is that subordinates may respond favorably to authoritarian leaders if they are highly oriented toward authority (B.-S. Cheng, Shieh, & Chou, 2002; Deci & Ryan, 1995), highly dependent on supervisors (B. S. Cheng et al., 2004), or highly traditional (Farh et al., 2006). Since our respondents are all from China, a culture that respects hierarchy and authority, it is reasonable that these Chinese employees have natural attachments to strict leaders and are likely to accept their management style. As such, these positive impacts of AL may neutralize our hypothesized negative effects, resulting in the nonsignificant impact of authoritarian leaders on social bond.

6.1 Theoretical Contributions

This research makes three major theoretical contributions. For information security research, our study reveals the necessity of investigating the impact of leadership styles on ISP compliance. In the current research, we demonstrate that the three dimensions of PL--authoritarian leadership, benevolent leadership, and moral leadership--positively influence employees' ISP compliance for different reasons, to different degrees, and through different mechanisms. Theoretically, we elaborate that each PL dimension has its own characteristics and affects ISP compliance in different ways. Statistically, we found a positive impact of all PL dimensions on employees' ISP compliance. The differences in the path-weight coefficients indicate that the impact of these different leadership styles is not the same. The mediation test results show that authoritarian leadership has only a direct impact on ISP compliance, while the impacts of benevolent and moral leadership are partially mediated by social bond. Hence, in general, we demonstrate that different leadership styles influence employees' ISP compliance in different ways. Previous literatures have stressed the importance of leaders' support, participation, and practices in predicting employees' ISP compliance (M. Chan et al., 2005; Hu et al., 2012; Humaidi & Balakrishnan, 2018; Knapp et al., 2006). Our research found that different leadership styles cause leaders to behave differently in terms of their support, participation, and practices, and hence lead to different impacts on ISP compliance. By focusing on the impact of specific leadership styles, we offer leaders a greater understanding of different leadership styles, which can thus help them decide which style to adopt and how to behave when supporting and participating in information security management in a way that best motivates employees' ISP compliance.

Our research opens pathways for future research to investigate the impact of other leadership styles for ISP compliance. Furthermore, the distinct impacts and influencing mechanisms of AL, BL and ML not only confirm the significance of leadership style for employees' ISP compliance but also suggest that when studying the impact of multidimensional leadership styles such as PL, it is necessary to examine how the underlying facets of the leadership style affect the outcomes of interest (Polites et al., 2012).

In terms of research on paternalistic leadership and compliance, we contribute a specific context and a mediation mechanism and derive new knowledge about how each PL dimension influences employees' ISP compliance. First, we expand the understanding of the PL-compliance relationship by focusing specifically on the ISP compliance and the information security context, which distinguishes our research from previous PL-compliance research. In the context of information security, our research demonstrates that all PL dimensions positively influence compliance. Second, by adopting the social bond as the mediation mechanism, we better explain the process of how PL affects employees' ISP compliance. Both perspectives are new to the PL-compliance research. Third, our research contributes new discoveries relating to each PL dimension. Our findings indicate that authoritarian leadership has a positive direct effect on employees' ISP compliance. This positive effect of AL stands in sharp contrast to findings in the existing PL literature that often describe AL as related only to negative outcomes such as employees' fear, anger, low organizational commitment, work dissatisfaction, low organizational citizenship behavior, etc. (S. C. Chan, 2014; X. P. Chen et al., 2014; Pellegrini & Scandura, 2008). Based on previous literature, we expected AL to exert a negative effect on the social bond, leading to a negative indirect effect on employees' ISP compliance. However, our results suggest that AL may also exert some positive influence on social bond formation capable of neutralizing its negative effect.

For benevolent leadership and moral leadership, we show that they these leadership styles have a direct and positive effect on employees' ISP compliance. We verified previous findings of BL and ML in a new context (B. S. Cheng et al., 2004; Farh, B.-S. Cheng, B. S., Chou, L. F., & Chu, X. P., 2006; Niu et al., 2009). Furthermore, while previous literature has not examined the indirect effects of BL and ML on compliance, our research found that these leadership styles have indirect effects on employees' ISP compliance through the mediation of the social bond. Moreover, our findings would not have been revealed had we adopted the overall PL construct. Therefore, our findings confirm the necessity of separately considering the impact of each PL dimension.

We contribute to the literature on social bond theory (SBT) by demonstrating that leadership style can influence social bond formation and that SBT can be applied as a mediating mechanism to examine the impact of leadership on employees' ISP compliance. We considered leadership styles as the precursor of social bond formation and found that benevolent leadership and moral leadership can positively influence its formation. Our research supplements the literature that directly adopts social bond elements as the determinants of ISP compliance without considering the upstream factors affecting the social bond (L. Cheng et al., 2013; Ifinedo, 2014; Safa et al., 2016). Since we know that the social bond facilitates ISP compliance, our research can help leaders modify their leadership styles in order to support social bond formation.

Our research also expands the application of social bond theory in the ISP compliance literature by demonstrating not only that the social bond affects ISP compliance, but also that it mediates the impact of leadership. Specifically, our research shows that leaders can indirectly influence employees' ISP compliance by performing behavior facilitating social bond formation. According to the SBT, such leader behaviors may include interacting with subordinates, organizing group activities, facilitating employees' work, delivering organizational values to employees, etc. These include general routine behaviors of leaders that may not seem related to information security. But, through the mediation of the social bond, we discover that leaders' routine behaviors can affect ISP compliance. This finding supplements the existing literature that stresses leaders' targeted efforts specifically related to information security issues (M. Chan et al., 2005; Hu et al., 2012; Humaidi & Balakrishnan, 2018). Through the use of SBT, we were able to examine the impact of leaders' routine behaviors on employees' ISP compliance, allowing us to investigate the impact of leadership on employees' ISP compliance from a novel perspective.

6.2 Managerial Implications

This paper provides several managerial implications. Please note that the results and implications we discuss will likely be most applicable in China or culturally similar areas where PL style is prevalent.

Leaders should pay attention to their current leadership style and adjust their behavioral patterns to effectively influence employees' ISP compliance. Our research shows that paternalistic leadership is effective in encouraging desirable IT security behavior. Hence, organizations could offer training to leaders to help leaders cultivate their paternalistic leadership style in a way that maximally benefits subordinates. We suggest that such leadership training should focus on the respective benefits of authoritarianism, benevolence,

and morality for employee ISP compliance. It is important to systematically introduce the concept of PL to inform leaders about both the positive and negative effects of each PL dimension on ISP compliance as well as on other employee outcomes in case these leadership styles are abused.

Based on our novel findings that authoritarian leadership can lead to positive outcomes in terms of employee ISP compliance, authoritarian leaders could leverage their authority by, for example, designing mandatory lectures, training courses, and regular assessments about IT security to help subordinates regulate their IT behaviors. Our research demonstrates that benevolent and moral leaders should leverage their leadership style to make employees more ISP compliant by, for example, helping employees improve IT security skills, by patiently explaining ISP and by acting as role models to demonstrate the value of information security.

BL and ML leaders can also indirectly influence employees' ISP compliance by facilitating social bond formation. In the context of BL and ML leadership styles, this means that leaders facilitate ISP compliance by, for example, actively communicating with subordinates, encouraging employee' participation in group meetings and other organizational activities, helping employees develop their careers, demonstrating good virtue, acting as self-disciplined and unselfish role models, etc. Performing such benevolent and moral behaviors by leaders on a routine basis can help enhance employees' attachment to leaders and organizations, making employees feel socially bonded and thus reducing their desire to violate ISP.

6.3 Limitations and Future Research Directions

This paper has two limitations. One is that we only collected data from China, a culture with great respect for hierarchy and traditionality, which stresses the importance of collectivism. However, PL is prevalent in many regions with different cultures (S. C. Chan et al., 2013). Individuals in cultures that stress privacy and individualism may have a different response to PL (Pellegrini & Scandura, 2008). Hence, our findings may not be universally generalizable. Cross-culture studies are needed to examine the impact of PL dimensions, especially AL, on ISP compliance in different cultures.

The other limitation is that, though SBT offers a good theoretical framework to explain the impact of PL on ISP compliance, there may be additional mechanisms mediating PL and ISP compliance. PL could influence many other aspects in organizations, such as organizational culture, teamwork, employee satisfaction and so on, which may influence employee perceptions and behaviors. More theory-based factors should be examined as mediators so that we can better understand the impact of PL. For example, the information security climate might be an interesting organizational factor that fully mediates the effects of PL on ISP compliance. Future research is needed to explore this direction.

7 Conclusion

Integrating the theory of PL and SBT, we developed and tested a research model to explain employees' ISP compliance. Based on the paired survey data of 314 Chinese employees, we found all three dimensions of PL—benevolent leadership, moral leadership and authoritarian leadership—to have significant direct positive effects on employees' ISP compliance intentions. The social bond partially mediates the impact of benevolent leadership and moral leadership on employees' ISP compliance intentions. Our findings suggest that PL can increase employees' ISP compliance intentions and that social bond is an important mechanism through which PL improves ISP compliance.

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Appendix A: Measurement Items

Table A1. Scales and Items

Paternalistic leadership (X. P. Chen et al., 2014; L. J. Farh et al., 2000)
Authoritarian leadership
1. My supervisor always behaves in a commanding fashion in front of employees.
2. I feel pressured when working with him/her.
3. My supervisor scolds us when we can't accomplish our tasks.
4. We have to follow his/her rules to get things done. If not, he/she punishes us severely.
Benevolent leadership
1. My supervisor is like a family member when he/she gets along with us.
2. My supervisor devotes all his/her energy to taking care of me.
3. My supervisor ordinarily shows a kind concern for my comfort.
4. My supervisor will help me when I'm in an emergency.
5. My supervisor takes very thoughtful care of subordinates who have spent a long time with him/her.
6. My supervisor meets my needs according to my personal requests.
7. My supervisor encourages me when I encounter arduous problems.
8. My supervisor takes good care of my family members as well.
9. My supervisor tries to understand what the cause is when I don't perform well.
10. My supervisor handles what is difficult to do or manage in everyday life for me.
Moral leadership
1. My supervisor does not take the credit for my achievements and contributions for himself/herself.
2. My supervisor does not take advantage of me for personal gain.
3. My supervisor does not use Guanxi (personal relationships) or back-door practices to obtain illicit personal gains.
Social bond (Herath & Rao, 2009; Ifinedo, 2014; S. M. Lee et al., 2004)
Attachment
1. I communicate with my supervisor in my task
2. I respect my supervisor's views and opinions about our organization
Commitment
1. I really care about the fate of this organization.
2. For me, this is the best of all possible organizations for which to work.
3. I am willing to invest energy and effort in making the organization a success
4. I am willing to put in a great deal of effort to help my organization succeed
Involvement
1. I value the opportunity to participate in informal meetings in my organization
2. I work on building personal relationships with many co-workers in my organization
3. I actively involve myself in activities related to my organization's growth

Personal norms/beliefs
1. It is serious matter if I don't comply with my organization's guidelines
2. It is unacceptable to not follow ALL guidelines and measures of my organization
3. To me, it is unacceptable to ignore my organization guidelines
ISP compliance intention (Bulgurcu et al., 2010)
1. I intend to comply with the requirements of the ISP of my organization in the future.
2. I intend to protect information and technology resources according to the requirements of the ISP of my organization in the future.
3. I intend to carry out my responsibilities prescribed in the ISP of my organization when I use information and technology in the future.
ISP compliance behavior (reported by employees)
1. Do you always comply with the ISP rules of your organization (1 = strongly disagree, 7 = strongly agree)
2. How often do you violate the ISP rules of your organization (1 = never, 7 = often) (reverse-coded)
ISP compliance behavior (reported by supervisors)
Employee name: xxx
1. Does this employee always comply with the ISP rules of your organization (1 = strongly disagree, 7 = strongly agree)
2. How often does this employee violate the ISP rules of your organization (1 = never, 7 = often) (reverse-coded)
Social desirability (Reynolds, 1982)
1. I sometimes feel resentful when I don't get my way.
2. There have been occasions when I took advantage of someone.
3. I sometimes try to get even, rather than forgive and forget.
Note: All items were measured using seven-point Likert-type scales from 1 = *strongly disagree* to 7 = *strongly agree*.

Appendix B: Respondents' Demographic Information

Table B1. Demographic Information

Characteristic		Frequency	Percentage
Gender	Male	196.00	62.42
	Female	118.00	37.58
Age	Under 20	1.00	0.32
	21-30	181.00	57.64
	31-40	101.00	32.17
	41-50	19.00	6.05
	51-60	10.00	3.18
	Above 60	2.00	0.64
Job position*	Top level	4.00	1.27
	Middle level	65.00	20.70
	Basic level	245.00	78.03
Industry	Telecommunication	1.00	0.32
	Financial services	39.00	12.42
	Government	1.00	0.32
	Wholesale/retail	17.00	5.41
	IT	85.00	27.07
	Manufacture	44.00	14.01
	NGO	2.00	0.64
	Services	39.00	12.42
	Other	86.00	27.39
Size of company (numbers of employees)	Under 500	291.00	92.68
	500-999	13.00	4.14
	1000-4999	3.00	0.96
	4000-10000	1.00	0.32
	Other	6.00	1.91
Annual revenue (counted by RMB)	Under 1 million	51.00	16.24
	1 million - 5 million	26.00	8.28
	5 million - 10 million	29.00	9.24
	10 million - 50 million	37.00	11.78
	50 million - 200 million	64.00	20.38
	200 million-500 million	57.00	18.15
	Above 500 million	50.00	15.92
Educational level	Under high school	4.00	1.27
	High school graduate	19.00	6.05
	College degree	104.00	33.12
	Undergraduate	161.00	51.27
	Master's degree	22.00	7.01
	Other	4.00	1.27
Work experience	<5 years	247.00	78.66
	5 - 10 Years	39.00	12.42
	More Than 10 Years	28.00	8.92

Organization type	State owned	71.00	22.61
	Collective owned	2.00	0.64
	Shareholding	101.00	32.17
	Privately owned	129.00	41.08
	Other	11.00	3.50
*****Top-level job positions refer to the presidents of the board, CEO, vice president. Middle-level job positions include department managers, leaders of branch offices and directors of different levels. Basic-level job positions include front line team leaders and workers.			

Appendix C: Descriptive Analysis and Factor Loadings

Table C1. Descriptive Analysis and Factor Loadings

Construct	AVE	C.R.	Indicator	Mean	SD	Loading
AL	0.603	0.856	AL1	2.79	1.90	0.91
			AL2	3.28	1.89	0.855
			AL3	3.98	1.82	0.59
			AL4	3.36	2.01	0.711
BL	0.705	0.960	BL1	5.78	1.53	0.849
			BL2	5.19	1.68	0.799
			BL3	4.89	1.87	0.774
			BL4	5.83	1.50	0.89
			BL5	5.56	1.57	0.907
			BL6	6.04	1.33	0.881
			BL7	5.80	1.41	0.917
			BL8	4.89	1.84	0.715
			BL9	5.96	1.38	0.888
			BL10	4.62	1.93	0.748
ML	0.831	0.936	ML1	6.04	1.58	0.881
			ML2	6.10	1.52	0.937
			ML3	6.20	1.46	0.915
SBA	0.783	0.879	SBA1	5.91	1.37	0.871
			SBA2	6.02	1.18	0.899
SBC	0.768	0.930	SBC1	6.61	0.87	0.853
			SBC2	6.06	1.24	0.779
			SBC3	6.61	0.82	0.932
			SBC4	6.68	0.76	0.933
SBI	0.819	0.931	SBI1	6.47	0.94	0.878
			SBI2	6.65	0.77	0.911
			SBI3	6.62	0.79	0.925
SBP	0.718	0.884	SBP1	6.38	1.08	0.844
			SBP2	6.18	1.21	0.844
			SBP3	6.28	1.23	0.854
SD	0.692	0.870	SD1	1.95	1.43	0.769
			SD2	1.68	1.40	0.823
			SD3	1.54	1.16	0.898
CB	0.904	0.950	CB1	6.64	0.68	0.952
			CB2	6.65	0.66	0.95
CI	0.921	0.972	CI1	6.57	0.90	0.934
			CI2	6.61	0.86	0.982
			CI3	6.64	0.81	0.962

Appendix D: Cross-Loadings

Table D1. Cross-Loadings*

	AL	BL	ML	SBA	SBC	SBI	SBP	SD	CB	CI
AL1	**0.91**	-0.32	-0.29	-0.06	-0.24	-0.19	-0.08	0.38	-0.27	-0.15
AL2	**0.86**	-0.22	-0.18	-0.13	-0.20	-0.18	-0.08	0.30	-0.22	-0.12
AL3	**0.59**	-0.11	-0.11	0.05	-0.05	-0.04	0.03	0.16	-0.13	-0.01
AL4	**0.71**	-0.21	-0.25	-0.04	-0.14	-0.11	-0.06	0.26	-0.20	-0.04
BL1	-0.32	**0.85**	0.46	0.22	0.30	0.32	0.26	-0.12	0.04	0.25
BL2	-0.21	**0.80**	0.42	0.14	0.21	0.19	0.22	-0.05	-0.01	0.18
BL3	-0.14	**0.77**	0.37	0.11	0.19	0.17	0.24	-0.02	-0.05	0.17
BL4	-0.27	**0.89**	0.46	0.20	0.30	0.29	0.24	-0.12	0.03	0.29
BL5	-0.28	**0.91**	0.49	0.21	0.31	0.32	0.25	-0.12	0.06	0.24
BL6	-0.30	**0.88**	0.49	0.18	0.27	0.26	0.25	-0.18	0.10	0.29
BL7	-0.28	**0.92**	0.48	0.22	0.31	0.30	0.28	-0.16	0.08	0.30
BL8	-0.09	**0.72**	0.37	0.16	0.15	0.14	0.16	0.06	-0.09	0.07
BL9	-0.33	**0.89**	0.50	0.25	0.37	0.36	0.31	-0.21	0.10	0.33
BL10	-0.11	**0.75**	0.36	0.14	0.18	0.17	0.24	0.01	-0.08	0.12
ML1	-0.23	0.47	**0.88**	0.26	0.27	0.23	0.26	-0.19	0.10	0.27
ML2	-0.27	0.48	**0.94**	0.34	0.31	0.29	0.32	-0.23	0.16	0.34
ML3	-0.25	0.50	**0.92**	0.37	0.36	0.34	0.35	-0.25	0.18	0.38
SBA1	-0.07	0.20	0.33	**0.87**	0.38	0.42	0.31	-0.06	-0.11	0.22
SBA2	-0.09	0.20	0.31	**0.90**	0.45	0.40	0.33	-0.13	0.12	0.25
SBC1	-0.21	0.29	0.31	0.48	**0.85**	0.71	0.49	-0.23	0.22	0.36
SBC2	-0.21	0.38	0.31	0.33	**0.78**	0.59	0.47	-0.24	0.11	0.33
SBC3	-0.22	0.26	0.32	0.44	**0.93**	0.76	0.58	-0.34	0.25	0.43
SBC4	-0.20	0.25	0.29	0.42	**0.93**	0.83	0.58	-0.29	0.23	0.48
SBI1	-0.18	0.25	0.24	0.35	0.68	**0.88**	0.50	-0.23	0.20	0.46
SBI2	-0.20	0.29	0.29	0.48	0.75	**0.91**	0.50	-0.22	0.22	0.44
SBI3	-0.17	0.32	0.33	0.43	0.82	**0.93**	0.58	-0.25	0.25	0.51
SBP1	-0.05	0.21	0.29	0.33	0.51	0.53	**0.84**	-0.22	0.20	0.37
SBP2	-0.09	0.27	0.29	0.26	0.51	0.47	**0.84**	-0.19	0.14	0.37
SBP3	-0.07	0.28	0.30	0.33	0.52	0.49	**0.85**	-0.17	0.11	0.35
SD1	0.39	-0.26	-0.33	-0.08	-0.30	-0.21	-0.23	**0.77**	-0.42	-0.31
SD2	0.23	-0.02	-0.11	-0.05	-0.27	-0.20	-0.19	**0.82**	-0.41	-0.32
SD3	0.33	-0.09	-0.19	-0.13	-0.24	-0.24	-0.17	**0.90**	-0.55	-0.42
CB1	-0.23	0.05	0.16	0.11	0.24	0.25	0.20	-0.52	**0.95**	0.50
CB2	-0.30	0.04	0.14	0.14	0.21	0.23	0.14	-0.55	**0.95**	0.49

Table D1. Cross-Loadings*

CI1	-0.10	0.26	0.33	0.20	0.38	0.44	0.39	-0.37	0.47	**0.93**
CI2	-0.15	0.29	0.37	0.27	0.47	0.52	0.44	-0.44	0.54	**0.98**
CI3	-0.16	0.30	0.37	0.29	0.48	0.53	0.41	-0.43	0.49	**0.96**

*The reason we observe positive AL-CI path coefficient and negative AL-CI cross-loadings at the same time is that the AL-CI path coefficient was calculated in the structural equation model by AMOS, in which social bond, compliance intention and compliance behavior are controlled by social desirability. In contrast, the cross-loading table in Appendix D was derived by exploratory factor analysis using SPSS, in which social-desirability control is not considered. Without social-desirability control, the AL-CI path coefficient is not significant ($\beta = 0.05$, NS). As indicated here, the average magnitude of the cross-loadings of AL on CI is -0.08, which is very small. Therefore, the negative and low AL-CI cross-loadings we observed do not contradict the positive AL-CI path coefficient derived from the model test.

Appendix E: Common Method Bias Analysis

Concerning the common method bias, we adopt both procedural remedy and statistical remedy to eliminate its effect (Cote & Buckley, 1987). We applied two procedural controls: First, we separated the questionnaire into two parts and asked each respondent to complete these two parts at different times, endeavoring to separate predictors and dependent variables. At Time 1, we measured basic information and social bond elements. At Time 2, we measured PL, ISP, compliance intentions, and self-reported compliance behavior. The time lag ranged from the length of a lecture to several days. As a result, the respondents were less likely to retain the same mood condition or refer to their short-term memory for consistent answers, which helped to reduce some sources of CMB (P. M. Podsakoff et al., 2003). Second, we asked respondents to give their names in order to match them with their supervisors. We informed them in advance that their data would be confidential and not shared with anybody. This was intended to help respondents provide honest answers and not manipulate their answers due to social desirability or leniency concerns (P. M. Podsakoff et al., 2003).

We also applied statistical remedies to supplement the procedural control. We identified social desirability (SD) as a primary source of method bias. According to P. M. Podsakoff et al. (2003), SD concerns the individual needs of social approval and acceptance, and this need is met by behaving in culturally acceptable and appropriate ways. SD drives people to present themselves in culturally favorable ways regardless of the nature of their true selves. Many behavioral studies have examined the existence of SD (Crowne & Marlowe, 1964). The SD bias may exist in our research because complying with ISPs is considered to be an acceptable and appropriate behavior, and respondents may falsely report high compliance even if they do not comply. Similarly, employees may overreport the existence of a social bond because employees are expected to attach strongly to leaders, demonstrate career commitment, frequently involve themselves in organizational activities, and believe in the norms within their organization. To control for this bias, we included SD in the research model by linking it to social bond, ISP compliance intention and actual compliance behavior, as recommended by Crowne & Marlowe, 1964; Reynolds, 1982; Turel, Serenko, & Giles, 2011. We compared the model results with and without SD. As Table E1 and Table E2 show, the model controlling for SD also fits the data well in terms of the fit indexes including CFI, GFI, TLI, RMSEA, and SRMR. We found SD to have significant relationships with ISP compliance intention, compliance behavior, and social bond, suggesting that much variance in the data is attributable to SD. The path coefficients among major constructs differed between the two models in both value and significance. This suggests that social desirability, if not controlled, can both inflate and deflate the path coefficients, leading to biased results. According to P. M. Podsakoff et al. (2003), the model estimates after controlling for method bias are more truthful. Therefore, our formal hypothesis testing results are based on the SD controlled model.

Since it is not easy to ask respondents to honestly and precisely report their actual compliance behavior to ISP, we collected data for this construct from both employees and their direct supervisors. In all, we collected 314 pairs of data on compliance behavior. According to P. M. Podsakoff et al. (2003), self-reported data (Mean = 1.4; SD = 1.074) may suffer from rating bias, which includes both social desirability and the unintentional bias caused by holding different judgement standards for compliance. Supervisor-reported compliance behavior (Mean = 1.31; SD = 0.629) may be affected by the knowledge bias because supervisors rated their subordinates based on their own observations rather than their actual compliance behavior. In our research, testing the model with the behavior data reported by different source may lead to different results (using self-reported behavior data, CI → CB, $\beta = 0.366$, $P < 0.001$; using leader-reported data, CI → CB, $\beta = -0.001$, NS). Since both self-reported and supervisor-reported data are subject to potential bias, relying on single source data may be problematic (P. M. Podsakoff et al., 2003). On the one hand, self-reported data could be exaggerated or deflated by social desirability concerns, because employees may not want to honestly disclose their deviant behaviors. On the other hand, leader-reported data could be inaccurate due to knowledge bias because the leaders may not be fully aware of the employees' actual ISP compliance and deviant behaviors. According to Burton-Jones (2009), the average score of self-reported data and leaders-reported data is expected to be able to more accurately measure the true score. Therefore, we use the average score of employees' self-reported and leader-rated compliance behavior in our research, which weakens the potential method bias caused by single source data.

Table E1. Model Fit Comparison

Model	CMIN/DF	CFI	GFI	TLI	RMSEA	SRMR
SD controlled	1.73	0.942	0.839	0.936	0.048	0.0853
No SD	1.719	0.948	0.852	0.943	0.048	0.0706

Table E2. Path Coefficients Comparison

Path			SD controlled	No SD controlled
			Path weight	Path weight
AL	→	CI	0.168***	0.05
BL	→	CI	0.125*	0.079
ML	→	CI	0.132*	0.157*
Social bond	→	CI	0.378***	0.472***
AL	→	Social bond	0.023	-0.064
BL	→	Social bond	0.217**	0.191**
ML	→	Social bond	0.219**	0.253***
COMP	→	CB	-0.309***	-0.556***
Age	→	CI	0.029	0.041
Edu	→	CI	0.05	-0.002
Gender	→	CI	0.084*	0.127**
Org size	→	CI	-0.087*	-0.122**
Age	→	CB	0.012	0.006
Edu	→	CB	-0.01	0.057
Gender	→	CB	-0.091*	-0.14**
Org size	→	CB	-0.043	-0.028

Appendix F: Post Hoc Model Comparison

Table F1. Comparison of R^2 and Beta Weights

		Each theory tested alone		**PL+SBT (current model)**		**PL+PMT**		**PL+SBT+PMT**	
		Compliance intention		Compliance intention		Compliance intention		Compliance intention	
		R^2	beta	R^2	beta	R^2	beta	R^2	beta
SBT	SB	0.427	0.441***	0.477	0.378***			0.515	0.259***
PL	AL	0.349	0.171**		0.168***	0.45	0.167**		0.175***
	BL		0.196**		0.125*		0.136*		0.124*
	ML		0.216***		0.132*		0.162**		0.138*
PMT	SEV	0.389	0.135*				0.147**		0.052
	SUS		0.018				0.019		0.014
	SEFF		0.179***				0.144**		0.095
	REFF		0.110*				0.071		0.018
	MR		-0.07				-0.061		-0.029
	RC		0.04				0.028		0.01
	FEAR		0.098				0.061		-0.012

Table F2. Comparison of Model Fit Indices

Model	**CMIN/DF**	**CFI**	**TLI**	**RMSEA**	**SRMR**
PMT	2.069	0.933	0.925	0.058	0.1053
PL+PMT	1.831	0.923	0.916	0.052	0.096
PL	1.957	0.948	0.941	0.055	0.0972
SBT	1.587	0.970	0.966	0.043	0.0618
PL+SBT	1.73	0.942	0.936	0.048	0.0853
PL+SBT+PMT	1.804	0.907	0.900	0.051	0.112

Table F3. Vuong's Test

Types	Models comparison		Variance test		Robust likelihood ratio test		Supported hypothesis
			ω^2	P	LR (Z)	P	
Nest model	M1	SBT	61.16	5.08E-08	LR = 16454.928	3.56E-09	H1: model 1 fits better than model 4
	M4	PL+SBT					
	M2	PMT	61.309	4.84E-08	LR= 16404.396	<2e-16	H1: model 2 fits better than model 5
	M5	PL+PMT					
	M3	PL	61.072	2.70E-08	LR = 8058.354	4.4E-10	H1: model 3 fits better than model 4
	M4	PL+SBT					
	M4	PL+SBT	105.734	<2e-16	LR = 20852.081	<2e-16	H1: model 4 fits better than model 6
	M6	PL+SBT+PMT					
Non-nested model	M4	PL+SBT	145.063	2.42E-08	z = 29.925	<2e-16	H1A: model 4 fits better than model 5
	M5	PL+PMT			z = 29.925	1	H1B: model 5 fits better than model 4
Note: In variance test, $p < 0.05$, accept H1: the two models are distinguishable.							

Table F4. Confidence Intervals of AIC and BIC Difference

Types	Models comparison		AIC	BIC	AIC difference C.I.		BIC difference C.I.	
					LB	HB	LB	HB
Nest model	M1	SBT	15579.60	15793.31	-17090.15	-16003.71	-17262.62	-16176.18
	M4	PL+SBT	32126.53	32512.71				
	M2	PMT	28467.53	28801.23	-17070.28	-15982.52	-17298.99	-16211.23
	M5	PL+PMT	44993.93	45556.33				
	M3	PL	24002.17	24264.63	-8667.18	-7581.53	-8790.91	-7705.26
	M4	PL+SBT	32126.53	32512.71				
	M4	PL+SBT	32126.53	32512.71	-21726.33	-20297.83	-22026.28	-20597.78
	M6	PL+SBT+PMT	53138.61	53824.75				
Non-nested model	M4	PL+SBT	32126.53	32512.71	-13704.01	-12030.79	-13880.23	-12207.02
	M5	PL+PMT	44993.93	45556.33				

Table F5. Mediation Test Results by Bootstrap

Independent variable	Mediator	Outcome	Direct effect	Indirect effect	Mediation
AL	Social bond	Comp intention	0.114**	0.006 (ns)	No mediation
BL	Social bond	Comp intention	0.072*	0.047**	Partial mediation
ML	Social bond	Comp intention	0.087*	0.054**	Partial mediation
AL	Severity	Comp intention	0.113**	-0.002 (ns)	No mediation
BL	Severity	Comp intention	0.076	0.001 (ns)	No mediation
ML	Severity	Comp intention	0.105*	0.011 (ns)	No mediation
AL	Susceptibility	Comp intention	0.114**	-0.002 (ns)	No mediation
BL	Susceptibility	Comp intention	0.075	0.002 (ns)	No mediation
ML	Susceptibility	Comp intention	0.104*	0.004 (ns)	No mediation
AL	Maladaptive reward	Comp intention	0.117**	0.002 (ns)	No mediation
BL	Maladaptive reward	Comp intention	0.076	0 (ns)	No mediation
ML	Maladaptive reward	Comp intention	0.103*	-0.001 (ns)	No mediation
AL	Self-efficacy	Comp intention	0.114**	0.01 (ns)	No mediation
BL	Self-efficacy	Comp intention	0.076	0.007 (ns)	No mediation
ML	Self-efficacy	Comp intention	0.104*	0.003 (ns)	No mediation
AL	Response efficacy	Comp intention	0.113**	-0.001 (ns)	No mediation
BL	Response efficacy	Comp intention	0.078	0.01 (ns)	No mediation
ML	Response efficacy	Comp intention	0.106*	0.006 (ns)	No mediation
AL	Response cost	Comp intention	0.114**	0.002 (ns)	No mediation
BL	Response cost	Comp intention	0.076	-0.001 (ns)	No mediation
ML	Response cost	Comp intention	0.104*	0.001 (ns)	No mediation

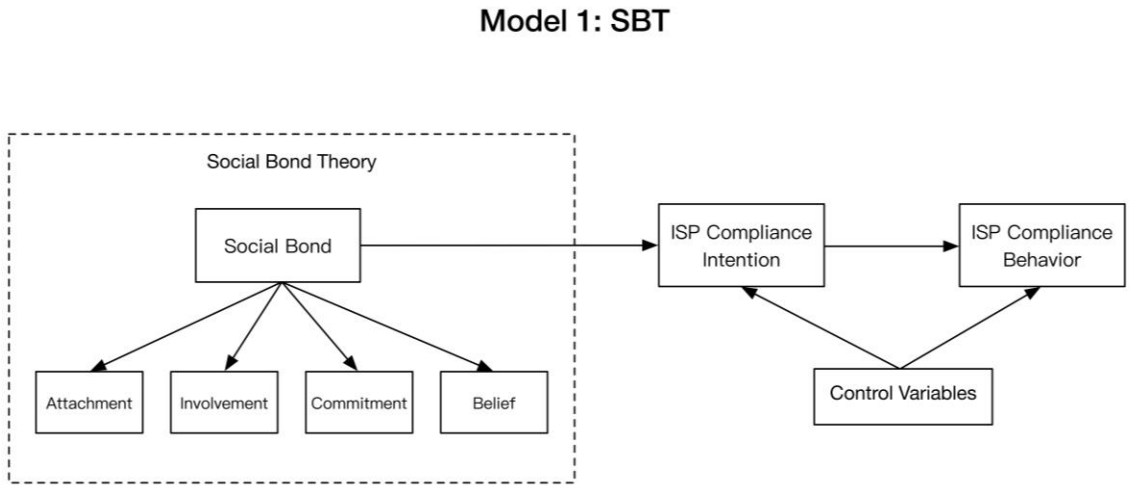


Figure F1. Model 1

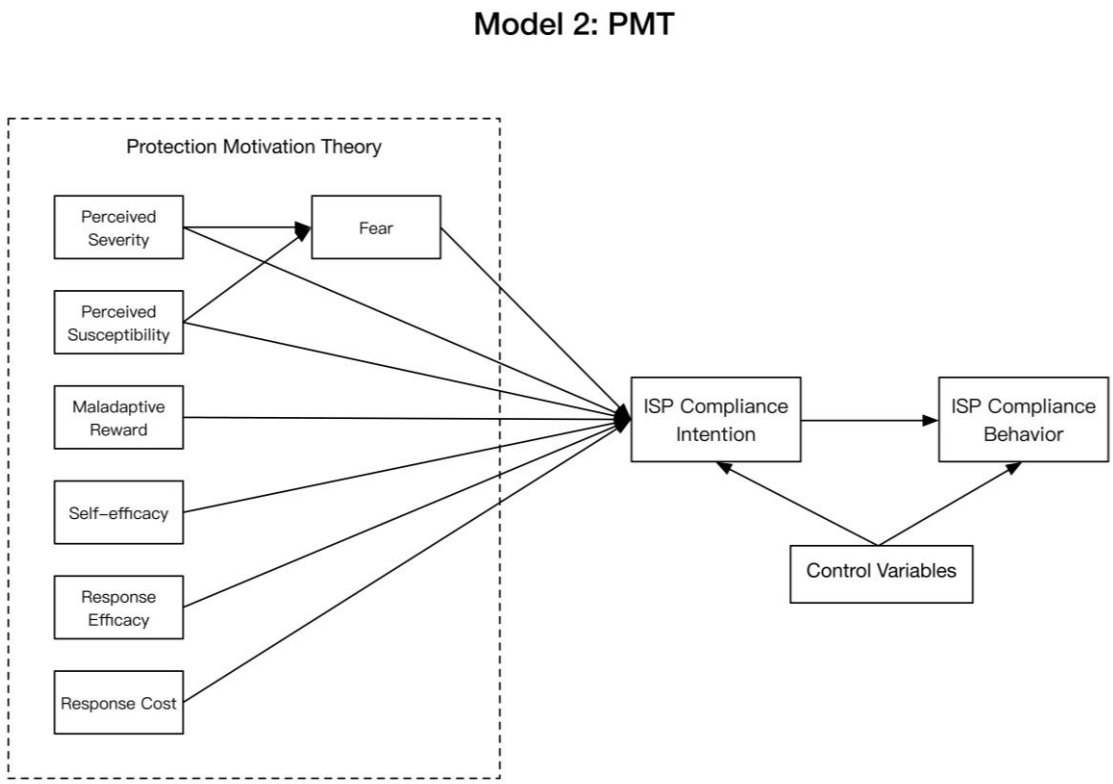
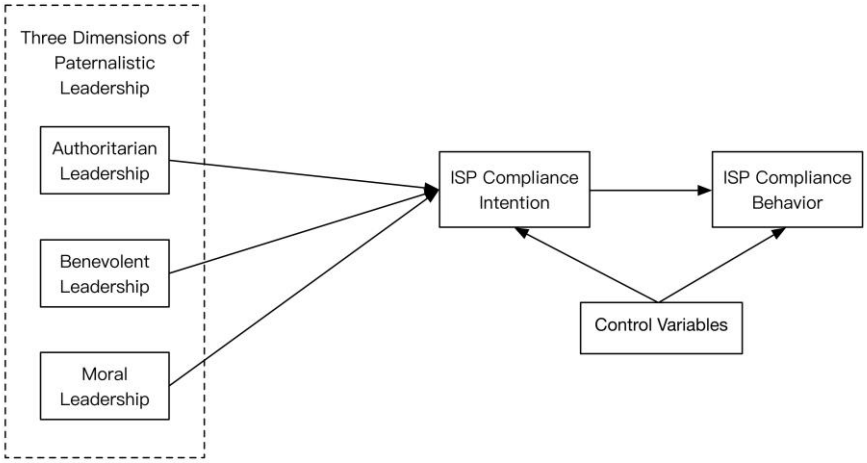


Figure F2. Model 2

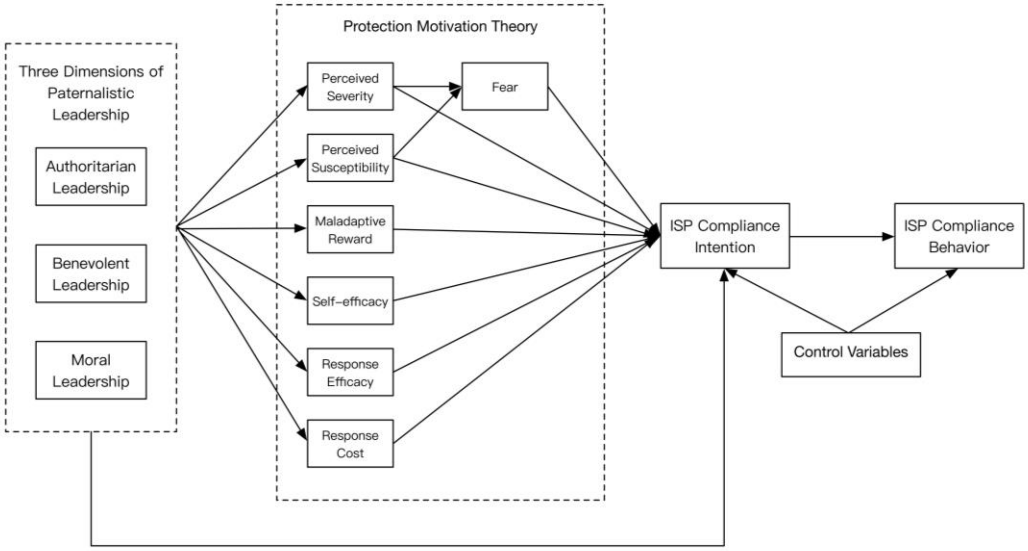
Model 3: PL



Model 4: PL+SBT (see Figure 1 in the Theoretical Framework)

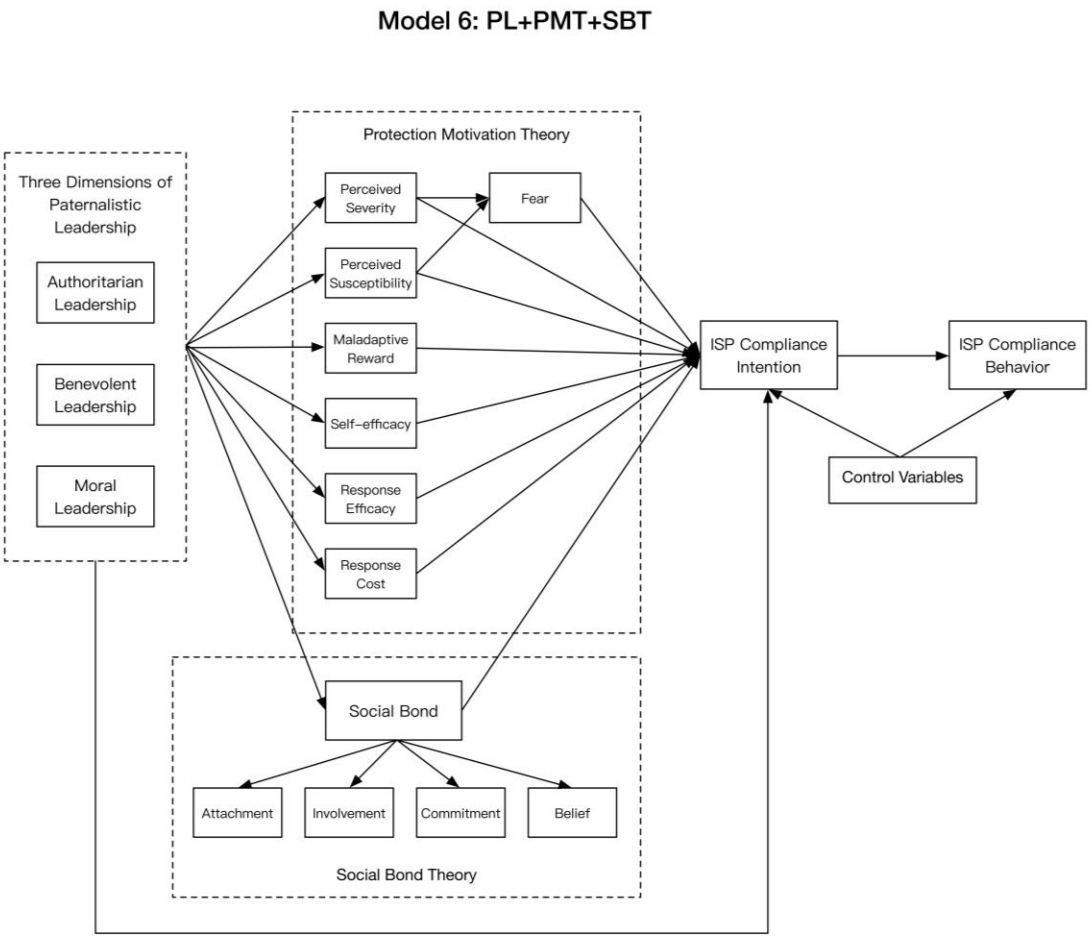
Figure F3. Model 3 and Model 4

Model 5: PL+PMT



Note:
Each dimension of PL is linked to PMT elements and ISP Compliance Intention. For simplicity, we drew the paths from PL to these outcomes, each of which includes three paths from each PL dimension to the outcomes. For example, the path PL–> Perceived Severity represents the path AL–> Perceived Severity, BL–> Perceived Severity and ML –> Perceived Severity.

Figure F4. Model 5



Note:
Each dimension of PL is linked to PMT elements, Social Bond and ISP Compliance Intention. For simplicity, we drew the paths from PL to these outcomes, each of which includes three paths from each PL dimension to the outcomes. E.g., the path PL–>Social Bond represents the path AL–> Social Bond, BL–> Social Bond and ML –> Social Bond.

Figure F5. Model 6

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