Improving IT professionals job skills development: The use of management styles and individual cultural value orientation

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ABSTRACT

This study examines how the effectiveness of new management styles (authoritarian, participative) may vary depending on individual cultural values of traditionality and contextual factors of innovative culture, why they moderate the relationship between new management styles and information technology engineers’ professional skills. Hypotheses that assume such links are proposed and tested using the sample drawn from 280 research and development employees in high-tech industry. A 3-way interaction qualifies these main effects: in the environment of high innovative culture, new participative management style relates positively to technical specialties and technology management knowledge of professional skills for engineers low on traditionality. In the workplace of low innovative culture, new authoritarian management style relates positively to business function knowledge of professional skills for engineers high on traditionality.

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1. Introduction

Over the past few decades, the effectiveness of management styles has emerged as a focus of attention in management studies. Empirical evidence supporting a contingent theory has long established that certain antecedents, such as management styles and organizational culture, have the capability to direct employee behavior (Luthans & Stajkovic, 1999). Walumbwa, Lawler, and Avolio (2007) reported that individuals exhibited stronger positive attitudes than under other management conditions, such as satisfaction with supervisors or organizational commitment, when management styles involved a cultural value orientation. This suggests that certain contextual factors may weaken or even possibly reverse the effects of management styles on subordinate performance and their development of professional skills (i.e., innovation culture), will be imperative. Meanwhile, social exchange theory has provided the conceptual underpinning of research on work attitudes and behaviors (Settoon, Bennett, & Liden, 1996). Specifically, employees with a high degree of social exchange perception will increase their prosocial motivation to reciprocate their job training and development (Kuvaas, Buch, & Dysvik, 2012). The impact of an innovative culture and traditionality on the relationship between management styles and professional skills has not yet to be examined in a single study. In this line of inquiry, applying the social exchange theoretical lens, we seek to gain a better understanding of how traditionality and perceived innovative culture impact the effectiveness of management styles on the development of professional skills.

Prior studies have mentioned several kinds of management styles. Specifically, participative management style and authoritarian management style are the two common yet opposing management styles found in businesses (e.g., Likert, 1967; Likert & Likert, 1976). Participative management is a style in which leaders empower and reward their subordinates and welcome employees’ participation in day-to-day operations (Nystrom, 1990). A more traditional style is authoritarian management (Barrett & Bass, 1976), which is characterized by paternalistic leadership (Morris & Pavett, 1992), collectivist orientation (Wright, Szeto, & Geory, 2000), and greater power distance between managers and employees (Hofstede, 1980). Previous research found firms that tend to
use the participative style foster experimentation and risk taking (Dixon, Meyer, & Day, 2007) and allow workers to enhance their professional skills (Cheng & Bolon, 1993) while authoritarian style impedes individual creativity which may possibly reduce an employee’s motivation to actively develop professional skills (Karakitapoglu-Aygun & Gumusluoglu, 2013). However, the negative aspects that are assumed inherent in authoritarian management could be alleviated if employees have cultural values aligned with this management style. For example, individuals who rate high in traditionality might prefer to be led by an authoritarian system. This implies that a good fit or an alignment between individuals’ cultural value orientation, such as traditionality, and organizational contexts, such as innovative culture, can improve the development of professional skills. Yet, a further review of the literature demonstrates that research exploring innovative culture and individual’s traditionality may play a limited role in how subordinates react to the relationship between management styles and the employees’ desire to improve their professional skills (e.g., Newman & Nollen, 1996). Employee professional skills are critical for an organization, and they play a fundamental role in attaining and maintaining a competitive advantage. Thus, it is important to understand the extent to which the effectiveness of management styles varies with a person’s cultural values and contextual factors.

Additionally, innovative culture is a set of shared norms that develop and establish the values, views, and attitudes necessary to foster experimentation and creativity (Schein, 1996). It can drive employees’ way of thinking and encourage them to be more proactive in problem solving, thus it has a positive effect on human capital motivation (Marquies, Simon, Jose, & Caranana, 2006). Traditionality emphasizes a respect for hierarchy in relationships and refers to hierarchical values in a broader societal context (e.g., Farh, Cheng, Chouand, & Chu, 2006). Previous studies have found it affects an employee’s reaction to employers in both Eastern and Western contexts (Hui, Leeland, & Rousseau, 2004). Thus, traditionality focuses on issues of hierarchy and relationships, making it relevant to this study for understanding management styles.

In a social exchange relationship within an organization, employers offer rewards and favorable job conditions in exchange for the employees’ loyalty and work effort (Blau, 1964). The suggested reciprocal commitment, trust, and mutual influence between managers and subordinates are positively related to management styles and professional skills in the workplace. Previous studies have found that social exchange theory is associated with higher levels of work performance (e.g., Song, Tsui, & Law, 2009) and employees will reciprocate the support from the organization by engaging in behaviors that exceed the minimal requirements for employment (e.g., Shore, Tetrick, Lynch, & Barksdale, 2006). Thus, building on previous research on management styles, organizational culture, and social exchange theory, we seek to more fully examine the unique and combined influences of individuals held cultural value of traditionality, the context factor of innovative culture, and the effectiveness of authoritarian and participative management styles on employees’ professional skills in the high-tech IT sector.

The purpose of this study is to expand the existing understandings of social exchange theory by discussing how the moderating effects of traditionality and innovative culture affect the relationship between management styles and professional skills. Therefore, this paper proposes three specific interaction effects. In particular, this study explores the influence of a new management style (i.e., new authoritarian and participative management style), which is based on Likert’s autocratic and participatory management styles and has added in the concept of power distance orientation, on development of professional skills. Second, this study tests the relationships among innovative culture, traditionality, management styles, and professional skills. Attention is given to the roles of innovative culture and traditionality, with a focus on the moderating effects to examine whether IT technical engineers’ professional skills are significantly enhanced.

This current study contributes to the social exchange literature by adding management style (authoritative and participative), and individual held cultural value orientation, such as traditionality and perceived innovative culture, for explaining the improvement of professional skills. We set to understand how professional employees are likely to reciprocate in social exchange with their manager. Understanding how professional employees are likely to reciprocate will improve the accuracy and generalizability of employee reciprocity models and provides insight into how to manage these professional workers effectively. Meanwhile, in order to acquire a more comprehensive understanding of management style, we added the concept of power distance in the current management style theory to be a new management style. We further propose that the extent to which professional workers reciprocate managerial treatment depends on the extent to which individual cultural value orientation, such as perceived innovative culture and traditionality. We anticipate a 3-way interactions effect among new management styles, perceived innovative culture, and traditionality will shape professional workers’ frame of references, which will more explicitly aid our understanding on the development of professional skills, especially when understanding the proportion of the workforce performing professional work has dramatically increased (Barley & Orr, 1997). Our findings are consistent with prior advocates of reciprocity dynamics and professional workers (e.g., Hekman, Gregory, Steensma, & Hereford, 2009), the literature on traditionality (e.g., Farh, Hackettand, & Liang, 2007) and management style (e.g., Likert, 1967; Likert & Likert, 1976). Yet, they also extend these works.

2. Theoretical model and hypotheses

2.1. New authoritarian and participative management styles

Management style is a preferred way of managing people to bind diverse operations and functions together, as well as to exercise control over employees (Clear & Dickson, 2005). Management style is “a recurring set of characteristics that are associated with the decisional process of the firm or individual managers” (Albaum, Herche, & Murphy, 1995; Tull & Albaum, 1971). Extensive research has distinguished two broad types of management style: authoritarian (traditional) and participative (democratic) (Likert, 1967; Likert & Likert, 1976). The authoritarian management style is autocratic, directing, and deal-oriented with rigid hierarchies to ensure that managers make centralized decisions (Wright et al., 2000) while participative management style focuses on communication through interactions and emphasizes procedure (Fu, Peng, Kennedy, & Yukl, 2004). Management styles and philosophies are anchored in the cultural values of a firm’s home country—for instance, a higher power distance exists in the authoritarian style and a lower power distance is associated with the participative style (Hofstede, 1980; Pye, 1985; Whitley, 1997). Specifically, the traditional, more authoritarian management concepts are common in Asia or South America (Anwar & Chaker, 2003; Chen, 2001; Hofstede, 1991, 2001; Newman & Nollen, 1996; Poon, Evangelista, & Albaum, 2005). Firms that adopt these concepts have to accept collective values and an unequal distribution of organizational power. In line with this concept, we submit that Likert’s four systems of management theory (Likert, 1967; Likert & Likert, 1976), which distinguishes between autocratic and participatory style, should consider the concept of power distance.
Power distance reflects how people view the societal differences of unequal power distribution between managers and subordinates (Hofstede, 2001). Power distance orientation of employees may facilitate or hinder management styles. For instance, some employees are likely to expect an assertive or autocratic leadership under a high power distance cultural context. Thus, in order to develop a more comprehensive perspective, this study follows Likert's four systems of management theory and adds the concept of power distance to the six management style dimensions: decision-making, control, leadership, communication, goal and motivation. We define that a new management style is a power distance oriented management philosophy and way of managing people to bind diverse operations and functions together, as well as to exercise control over employees. Moreover, we propose that new authoritarian management style (hereinafter new authoritarian style) is authoritarian with a high power distance as compared to new participative management style (hereinafter new participative style), which is associated with a low power distance management style. New authoritative style is characterized by the following: The leaders are directive, deal-oriented, and single-decision makers, in order to achieve harmony and collectivism. They fit with a hierarchical authority structure and a high power distance culture. The new participative style is characterized by the following: The leaders are participative toward the workforce and are group-based decision makers. They show function-oriented communication in order to attain process-oriented goal and individualism. They fit with a decentralized control structure and a lower power distance culture (refer Table 1 below).

2.2. Development of professional skills

The imperative of IT professional skills development as a resource and competence for organizations has been progressively noticed. IT professionals can exhibit a critical capability to propose novel and pioneering improvements, thus achieving greater organizational effectiveness. The professional skills for IT professionals are determined by the tasks that are required in their work environment (Leithesser, 1992), and as the complexity of technology increases, the skills of related workers must also increase. Domain-relevant skills, including programming, hardware expertise, and the application field of software, are essential for professionals to take on an entrepreneurial role and focus on innovation. We define that a new management style is a power distance oriented management philosophy and way of managing people to bind diverse operations and functions together, as well as to exercise control over employees. Moreover, we propose that new authoritarian management style (hereinafter new authoritarian style) is authoritarian with a high power distance as compared to new participative management style (hereinafter new participative style), which is associated with a low power distance management style. New authoritative style is characterized by the following: The leaders are directive, deal-oriented, and single-decision makers, in order to achieve harmony and collectivism. They fit with a hierarchical authority structure and a high power distance culture. The new participative style is characterized by the following: The leaders are participative toward the workforce and are group-based decision makers. They show function-oriented communication in order to attain process-oriented goal and individualism. They fit with a decentralized control structure and a lower power distance culture (refer Table 1 below).

2.3. New authoritarian and participative management styles and development of professional skills

According to the norms of positive reciprocity of social exchange theory, employees reciprocate the beneficial treatment they receive with positive attitudes and appropriate work-related behaviors to their employers or organization (Gouldner, 1960). Employees tend to perform better when they are supported by their managers. Their professional performance improves when they are granted the freedom to pursue organizational goals by whatever means they decide. For instance, under a decentralized structure of new participative management, employees are more willing to share their opinions, which allow them to participate in the organization and enjoy greater discretion or autonomy. Autonomy allows employees to generate innovative ideas, new prospects and positive feedback to achieve goals (Vecchio, 2003). Hence, the new participative style, as perceived by existing employees, is expected to encourage professionals to improve their skills—suggesting a positive relationship between participative style and professional skills.

H1. The new participative style, as perceived by existing employees, will positively influence the development of professional skills.

Authoritarian leaders dominate decision-making without asking for input from their employees (Hing, Bobocel, Zanna, & McBride, 2007). They prefer social conformity instead of personal autonomy. However, some employees may not obey authoritarian leaders by not taking expected actions, such as pursuing alternatives and new approaches, or executing their tasks when the leaders demand absolute obedience. From the perspective of social exchange theory, employees will reciprocate detrimental treatment with negative work-related behaviors (e.g., low level of helpfulness toward those who have treated them poorly) (Cropanzano & Mitchell, 2005). Employees may feel disappointment when they perceive a lack of support for fostering the development of their professional skills. Thus, authoritarian leaders can be counterproductive by limiting employees' creativity and development of abilities or skills.

H2. The new authoritarian style, as perceived by existing employees, will negatively influence the development of professional skills.

2.4. Traditionality as a moderator of new management styles — professional skills

Traditionality, which is defined as a commitment to, respect for, and receipt of the customs and norms of a traditional society—

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<th>Table 1</th>
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<td><strong>Summary of difference between new authoritarian and new participative styles.</strong></td>
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<td><strong>New authoritarian style</strong></td>
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<td>Centralized and single-decision maker (centralized control adoption)</td>
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<tr>
<td>Leadership</td>
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<td>Paternalistic (Morris &amp; Pavett, 1992); leadership-based and authoritarian leadership styles (Wright et al., 2000); directive (Wright et al., 2000)</td>
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<tr>
<td>Communication</td>
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<td>Focus on deal-oriented (Clarke, 1998); human side of a relationship and personal behavior (Yan &amp; Powell, 2004)</td>
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<td>Summarized in this study.</td>
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<td>Low power distance (Hofstede &amp; Bond, 1988)</td>
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that are ruled by cardinal relations or traditional values—reflects a moral obligation to achieve the normative expectations of a prescribed role to preserve social harmony and improve collective interests (Schwartz, 1992). It captures the extent that individuals adhere to traditional cultural values and endorse the traditional hierarchical role relationships prescribed by Confucian social ethics (Farh et al., 2007). Existing research often emphasizes the dimension of submission to authority, although traditionally there are five oblique factors (i.e., hierarchical orientation of wu lun), emperor-subject, father-son, husband-wife, older brother-younger brother, and friend-friend, used to categorize these relationship traits manifest in values and beliefs (Farh, Earley, & Lin, 1997). In view of the emergent trend of examining individual level orientations that reflect cultural values (Lam, Chen, & Schaubroeck, 2002), this study examines traditionality as a moderator of the relationship between new management styles and the development of professional skills.

Employees who are culturally more traditional are likely to transform their obedience and compliance into a strong commitment toward their superiors than people lower in traditionality. Traditionalists who strongly endorse traditional values are more amenable to relational ties and comply with their managers’ directions (Hui et al., 2004). Authoritarianism has a positive relationship with employees who are high in traditionality (Cheng, Chu, Wu, Huang, & Farh, 2004). According to social exchange theory, employees who receive a high degree of helpfulness, such as trust, respect, protection, and support, from their superiors are likely to reciprocate by showing high levels of work performance. In other words, employees who rate high on traditionality may continue to enhance their professional skills even when they are working under authoritarian leaders.

**H3. The negative association between new authoritarian management style and professional skills is stronger for employees with higher levels of traditionality.**

According to social exchange theory, an employee’s commitment to their superiors represents their affective attachment toward their superiors. Employees who are low in traditionality are relatively self-reliant and open to new ideas and have characteristics similar to individualists and pursue self-interests. They are responsive to the quality of the work relationship they have built with their supervisors. Thus, they are likely to be motivated to enhance their professional skills when placed under a supervisor who employs a participative style. Employees who rate high on traditionality may regard the participative style as less important. They are likely to expect their managers to make decisions and tell them what to do. In some situations, these high-traditionality employees may resist independence and responsibility that characterizes a high degree of self-management.

**H4. The positive association between new participative management style and professional skills is weaker for employees with higher levels of traditionality.**

2.5. **Innovative culture as a moderator of new management styles — development of professional skills relationship**

An innovative culture, which provides autonomy and flexibility, encourages individuals to develop their inventiveness (Hood & Koberg, 1991) and to determine the best way to accomplish tasks and the discretion to take risks (Byrne, Stoner, Thompson, & Hochwarter, 2005). According to social exchange theory, an employee’s social exchange with an organization takes place largely through leaders (Rhoades & Eisenberger, 2002), thus, employees attach importance to the reciprocity of their relationship with their superior. This idea further extends the explanation of professional skills improvement in terms of its association with firm specific contexts, innovative culture and management styles. Thus, when new management style that best suits the professionals is matched with an innovative culture, there is a significant effect on the link between new management style and professional skills. Specifically, employees in an innovative culture are likely to manifest gestures of goodwill that will be reciprocated at some future time. Innovative culture provides employees the flexibility in determining the best way to accomplish tasks and gives them the discretion to take risks (Scott & Bruce, 1994). Innovative culture inspires employees to get involved in the complicated technologies underlying new product development (Gaetigny & Xuereb, 1997). New participative style gives employees the freedom to conduct and explore in innovations. Thus, when a high level of innovative culture interacts with a new participative style, it will greatly stimulate employee willingness and encourage their efforts towards the development of professional skills.

**H5. The positive association between new a participative management style and professional skills is stronger for employees with higher levels of perceived innovative culture.**

In contrast, new authoritarian management styles favor traditional cultures (Barrett & Bass, 1976). Authoritarian managers prefer stable and predictable social order (Feldman, 2003). Thus, when a new authoritarian management style interacts with a high degree of innovative culture, it may bring high situational uncertainty and will correspond to conflict in which it will lead managers to exert more direct and strict managerial controls to supervise their employees. As a result, it may affect the relationship between employees’ perceptions of supervisor mistreatment and their engagement in workplace. Accordingly, employees’ motivation to enhance their professional skills will be impeded when a high level of innovative culture interacts with a new authoritarian style.

**H6. The negative association between a new authoritarian management style and professional skills is weaker for employees with higher levels of perceived innovative culture.**

2.6. Three-way interaction between new management styles, innovative culture, and traditionality

The employees’ propensity of engaging in job-related behavior is strongly influenced by their work context, which may either hinder or facilitate their behavior. A strong positive relationship between new participative management practices and innovative culture has been documented (Gudmunson, Tower, & Hartman, 2003; Ogbonna & Harris, 2000). Yet, these situations may conflict with the traditional values of employees. Meanwhile, new authoritarian management style, which could encourage obedience and dependence rather than initiative, might be incompatible with an organizational need for innovation. Traditionalists in a low innovative culture are likely to view a new participative style with fear or distrust since they are accustomed to receiving orders from their supervisors. As such, an innovative culture may not be compatible with a new authoritarian style. Moreover, innovative culture and traditionality are fundamentally opposite and have the counter-moderating effects in the relationship between new management styles and professional skills. Therefore, there is reason to consider a new discourse about how innovative culture and traditionality will jointly affect managerial behavior and the development of professional skills differently.

We propose that the moderating effect of an innovative culture in the relationship between new management styles and professional skills is contingent upon a third variable — traditionality. This distinction between direct and indirect managerial effects has
conceptual linkages to recent theoretical propositions regarding the role of traditionality in the influence process of new management styles. Employees with low traditionality are less likely to subscribe to their leader’s values and beliefs. The key influence on the improvement of professional skills in this study may not be what the manager does in the context of their interactions with the subordinate (direct effect), but may be related more strongly to the feedback provided by the manager, or to the perceived likelihood of receiving future rewards (indirect effect). In this case, a favorable culture for improving professional skills may provide employees with the information necessary to assess the appropriateness and future consequences of professional skills, thus reducing their dependence on the manager with respect to these indirect effects. That is, when traditionality is low, the direct effects of the manager will be limited, and a high innovative culture will act as a substitute for the effects of the manager with respect to improving professional skills. Thus, the highest levels of employee professional skills will occur when new management style and innovative culture are high, and traditionality is low, since the employee in this case is influenced by both the direct effects of the leader (as a result of low traditionality) and the indirect effects of innovative culture. We speculate that for employees with low level of traditionality, a high innovative culture has a positive moderating influence (i.e., the stronger the innovative culture, the stronger positive new participative management styles — professional skills relationship; the stronger the innovative culture, the least negative new authoritarian management styles — professional skills relationship).

H7. The association between new participative management style and professional skills is (a) most positive when innovative culture is high and traditionality is low (b) least positive when innovative culture is low and traditionality is high.

Employees with high traditionality are likely to be more strongly influenced by their supervisor’s behavior in and of itself (direct effects), compared to employees with low traditionality. Thus, the direct new management style effects associated with high traditionality rely on fundamentally different motivational sources than those of an innovative culture, which focus on communication and feedback mechanisms to the degree that creativity is valued within the overall organization. The effects of a high innovative culture are more related to indirect new management style effects, and are unlikely to negate the desire of a subordinate with high traditionality to obtain immediate satisfaction by responding to the direct effects of the manager. Instead, when traditionality is high, this study expects that a high innovative culture will not substitute for new management style, but may work in concert with an innovative culture to encourage the enhancement of professional skills, since the two effects are conceptually distinct. Thus, for employees with high traditionality, the lower the innovative culture, the negative new authoritarian management style — professional skills relationship; the lower the innovative culture, the stronger negative new authoritarian management styles — professional skills relationship).

H8. The association between new authoritarian management style and professional skills is (a) most negative when innovative culture is low and traditionality is high (b) least negative when innovative culture is high and traditionality is low.

3. Methods

3.1. Sample and procedure

The current study surveyed 280 Taiwanese high-tech employees (engineers and supervisors) in electronics, semiconductors, communications and electro-optical, information and software, telecommunication, precision instrument, and biotechnology industries. Face-to-face, telephone and e-mail communications were conducted with HR managers, R&D department assistants, R&D department employees and line managers in each survey organization to explain the study and persuade them to participate. In particular, except the engineers, we asked middle managers to be our respondents. This is in line with the literature middle managers should have direct influences for employee performance while comparing to other level of managers (Yang, Zhang, & Tsai, 2010). A cover letter indicated that participation was voluntary, the responses would be used for research purposes only, and confidentiality was guaranteed. The employees completed the questionnaire during breaks at work or at home and returned them to an R&D department assistant or other coworker in a sealed envelope. Follow-up telephone calls and e-mails were made to increase the response rate. From 500 distributed questionnaires, 292 were collected, and 280 were valid, giving a valid response rate of 56%. The sample respondents were 83.6% male, and 67.5% were under 35 years of age; they were fairly highly educated (36.5% had completed college or university while 59.3% had obtained a master’s degree), and 21.1% reported an organizational tenure of 3.1–5 years.

3.2. Measures

The original questionnaire was prepared in English. However, because the conventional language of Taiwanese residents is Mandarin Chinese, the surveys were translated and distributed in Taiwan in Mandarin using the standard method of back-translation with the aid of bilingual experts (Brislin, 1980). Next, a preliminary questionnaire was given to five high-tech professional workers from three industries (electronics, communications and electro-optics); after some minor changes, the translated version was pretested with 50 employees who were asked to comment on the items that they found ambiguous or difficult to understand. All questions were answered on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

3.2.1. New management styles

This was measured using a 26-item questionnaire adopted from Likert and Likert (1976) and Earley and Erez (1997) that examines the degree of the employees’ recognition toward their manager’s management style. Specifically, this study adapted the 18 items used in Likert and Likert’s (1976) Profile of Organizational Characteristics Questionnaire by replacing the original 20-point Likert-type scale with the 7-point scale outlined above. The authors changed some of the questions—for example, this study replaced “How free do employees feel about talking to superiors about the job?” with “We can talk freely with our supervisor about matters related to work.” This study also added a power distance questionnaire from Earley and Erez (1997), which included an 8-item scale assessing the degree of employees’ recognition of management power distance. Previous studies that used this scale include Earley (1999) (α = 0.81) and Yang, Lee, and Lee (2007) (α = 0.73). A sample item from this scale is, “In most situations managers should make decisions without consulting their subordinates.” Firms may have both participative and authoritarian styles at the same time, or leaders may exhibit different behaviors as the situation requires (Fiedler, 1978). Therefore, this study treats authoritarian and participative styles as separate dimensions of management. In the current study, the coefficient alpha of the participative style was 0.91, while that of the authoritarian style was 0.77.
3.2.2. Perceived innovative culture

This was measured using seven items adopted from Menon, Bharadwaj, Phani, and Edison (1999), where the reliability estimate was greater than 0.60. A sample item states, “People feel that their ideas and information are listened to by others.” Other studies that have used this scale include Maltz, Menon, and Wilcox (2006), with a coefficient alpha of 0.75. In this study, the coefficient alpha was 0.88.

3.2.3. Development of professional skills

The development of professional skills was used as the dependent variable. This study adopted the questionnaire from Lee et al. (1995), which included technical specialties knowledge ($\alpha = 0.90$); technology management knowledge ($\alpha = 0.71$); business function knowledge ($\alpha = 0.85$), and interpersonal and management skills ($\alpha = 0.91$). The authors revised the questions on technical specialties knowledge because the original dimension was designed for IS rather than IT professionals. To determine which types of technical specialties knowledge to include in this survey, this study first consulted the literature, as well as experts in various IT R&D disciplines. New items such as “professional technical knowledge (software design knowledge; hardware design knowledge); ” “software management knowledge; hardware management knowledge; technical support management knowledge”, and “specialized application techniques knowledge” were included. A 21-item questionnaire was used to assess these four variables and a description of “My current working environment improves my … ” was added before the survey questions. Sample items included: “ability to learn technical specialties knowledge”, “ability to learn technological management knowledge”, “ability to learn about business functions ” and “ability to work cooperatively in a one-on-one and project team environment”. The coefficient alpha of technical specialties knowledge was 0.89; technology management knowledge was 0.85; business functional knowledge was 0.94; and interpersonal and management skills were 0.95.

3.2.4. Traditionality

This was measured using five items from Farh et al. (2007); one sample item was “The best way to avoid mistakes is to follow the instructions of senior persons”. Other studies that have used this scale include Farh et al. (1997) ($\alpha = 0.76$) and Farh et al. (2007) ($\alpha = 0.68$). In this study, the coefficient alpha was 0.74.

3.2.5. Control variables

Subordinate demographic characteristics such as age, education, tenure, and firm characteristics including firm size comprised the primary control variables. Age was split into seven categories: 25 or under, 25.1–30, 30.1–35, 35.1–40, 40.1–45, 45.1–50 and over 50. High levels of education were found to be related to traditionality (Farh et al., 1997); therefore, education was split into five categories: high school/occupation school, university, graduate school, and postgraduate. Organizational tenure was split into eight categories: 1 year or less, 1.1–3, 3.1–5, 5.1–10, 10.1–15, 15.1–20, 20.1–25 and more than 25 years. A final variable involves firm size. Firms become less innovative as they become larger and more bureaucratic (Robey, 1991), while most small to medium-sized enterprises are more supportive of an innovative culture (Chandler, Chalonand, & Lyon, 2000). In the current paper, firm size was operationalized as the number of people in the company.

4. Results

4.1. Confirmatory factor analyses

First, this study performed a series of confirmatory factor analyses (CFAs) to verify construct distinctiveness before testing the hypotheses. To assess whether the observed covariance matrix fit the hypothesized model, this study used the comparative fit index (CFI), goodness-of-fit index (GFI), and standardized root-mean-square residual (SRMR). The results show that the CFA of the one-factor innovative culture (7 items) base model yielded good fit indexes within an acceptable range ($\chi^2[11] = 28.86, RMSEA = 0.08, CFI = 0.98$), the two-factor new management style model yielded very good fit indexes ($\chi^2[108] = 203.73, RMSEA = 0.06, CFI = 0.96$), the four-factor development of professional skills dimension base model yielded very good fit indexes ($\chi^2[161] = 304.06, RMSEA = 0.06, CFI = 0.97$), and the one-factor traditionality (5 items) model also showed a very good fit ($\chi^2[2] = 3.088, RMSEA = 0.04, CFI = 0.99$). Second, this study also undertook the procedure recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) to reduce and evaluate the magnitude of common method bias. Harman’s one-factor test was conducted on all of the items, extracting twelve distinct factors that accounted for 63 percent of the total variance, with the first factor explaining 26 percent. Thus, no single factor emerged, nor did one factor account for most of the variance. The results suggest that the common method bias is not a major threat in this study and support the validity of the measures. Third, to test for non-response bias, we tested differences between respondents and non-respondents for our final sample. T-tests showed no significant differences based on the number of full-time employees of the firms.

4.2. Hypotheses tests

Descriptive statistics, bivariate correlations, and Cronbach’s alphas for all the variables are presented in Table 2. In order to test the interactions, all predictor variables were mean-centered to reduce multicollinearity, as recommended by Aiken and West (1991).

The six hypotheses were tested by a multiple hierarchical regression analysis (Aiken & West, 1991). The results of the tests for Hypotheses 1–4 and 5–8 are shown in Table 3 and Table 4, respectively, under columns labeled with the relevant model. To test $H1$ and $H2$ concerning the main effects of new management style, we regressed new management styles and professional skills while controlling for respondent’s age, education, tenure, and firm size. The results show that participative style had a significant and positive effect on technical specialties knowledge ($\beta = 0.12, p < 0.05$), technology management knowledge ($\beta = 0.17, p < 0.01$), business functional knowledge ($\beta = 0.19, p < 0.01$) and interpersonal and management knowledge ($\beta = 0.17, p < 0.01$). $H1$ is therefore supported. Table 3 shows that new authoritarian style is negatively related to employee professional skills (technical specialties knowledge, technology management knowledge, business functional knowledge, and interpersonal and management knowledge). The effect of new authoritarian style was not significant; therefore, the results provide limited support for $H2$. $H3$ and $H4$ proposed that the moderating effects of traditionality on the relationship between new authoritarian and new participative management styles and professional skills. As shown in Model 2 of Table 3, traditionality significantly moderates the relationship between new authoritarian style and business function skills ($\beta = 0.14, p < 0.05$). Therefore, $H3$ was partly supported. We found
the non-significant moderating effect of traditionality on the relationship between a new participative style and professional skills. H4, therefore, was not supported.

H5 and H6 proposed the moderating effects of innovative culture on the relationship between new management styles, such as participative and authoritarian, and professional skills. As shown in Model 3 of Table 4, the coefficient of new participative style and innovative culture was shown all non-significant, thus, H6 was not supported. H7 and H8 examine the joint effects of innovative culture and traditionality on the relationship between new management styles (authoritarian and participative) and professional skills. Model 4 in Table 4 shows a significant three-way interaction of new participative management style, innovative culture, and traditionality for technical specialties knowledge (β = 0.12, p < 0.05); technology management knowledge (β = 0.16, p < 0.01), and business function knowledge(β = 0.09, p < 0.1), but not for interpersonal and management. H7, thus, partly supported. The coefficient of the three-way interaction term of new authoritarian style, innovative culture, and traditionality had a significant and positive effect on technical specialties knowledge (β = 0.09, p < 0.1); technology management knowledge (β = 0.09, p < 0.1), and business function knowledge(β = 0.11, p < 0.05), but not for interpersonal and management knowledge. H8, thus, partly supported. To determine the form of the three-way interaction, this study used the means of the variables and cut values of one standard deviation above and below the mean for each of the three relevant variables to obtain eight
Table 4

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Technical specialties</th>
<th>Technology management</th>
<th>Business function</th>
<th>Interpersonal and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control variables</td>
<td>Model 3</td>
<td>Model 4</td>
<td>Model 4</td>
<td>Model 3</td>
</tr>
<tr>
<td>Age</td>
<td>0.081</td>
<td>0.090</td>
<td>0.197***</td>
<td>0.191***</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.016</td>
<td>0.017</td>
<td>0.016</td>
<td>0.016</td>
</tr>
<tr>
<td>Education</td>
<td>0.051</td>
<td>0.034</td>
<td>0.013</td>
<td>0.003</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.039</td>
<td>0.036</td>
<td>0.010</td>
<td>0.012</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.017</td>
<td>0.028</td>
<td>0.008</td>
<td>0.012</td>
</tr>
<tr>
<td>Main effects</td>
<td>0.014</td>
<td>0.011</td>
<td>0.014</td>
<td>0.014</td>
</tr>
<tr>
<td>(New) Participative style</td>
<td>0.014</td>
<td>0.113**</td>
<td>0.049</td>
<td>0.141**</td>
</tr>
<tr>
<td>(New) Authoritarian style</td>
<td>0.001</td>
<td>0.031</td>
<td>0.051</td>
<td>0.075</td>
</tr>
<tr>
<td>Traditionality (M1)</td>
<td>0.529***</td>
<td>0.532***</td>
<td>0.572***</td>
<td>0.579***</td>
</tr>
<tr>
<td>Innovative Culture (M2)</td>
<td>0.095***</td>
<td>0.095***</td>
<td>0.095***</td>
<td>0.095***</td>
</tr>
<tr>
<td>Interactions (two-way)</td>
<td>0.095***</td>
<td>0.095***</td>
<td>0.095***</td>
<td>0.095***</td>
</tr>
<tr>
<td>Interactions (three-way)</td>
<td>0.095***</td>
<td>0.095***</td>
<td>0.095***</td>
<td>0.095***</td>
</tr>
</tbody>
</table>

Notes.***: p < 0.005; **: p < 0.01; *: p < 0.05; †: p < 0.1 two-tailed tests.

5. Discussion and implication

The present study examines the relationship between new management styles and IT technical engineers’ professional skills in a model that takes into account the effects of individual cultural value orientation and organizational contextual factors. The results indicate that new participative style has a significant and positive effect on IT technical workers’ development of professional skills. An innovative culture has a significant moderating effect on the relationship between new participative style and professional skills. These findings support the idea that highly industrialized nations tend more towards a participative style (Yucelt, 1986); while an authoritarian style is still found among Chinese leaders (Tsui, Wang, Xin, Zhang, & Fu, 2004). New authoritative style positively influences business function skills for the professionals who are high in traditionality. This specifies that although the new authoritative style is rigid, dogmatic, and rule-bound, in some cases it also emphasizes the human side of relationships and personal behavior, such as on relationships or networks between people who are high in traditionality. This specification partially supports H7.
In a high innovative culture environment, the new participative style positively relates to technical specialties and technology management knowledge of professional skills for engineers low on traditionality. In contrast, the new authoritarian style positively relates to business function knowledge of professional skills for engineers high on traditionality in a workplace with a low innovative culture. The results illustrate that the new authoritarian style positively relates to the business function knowledge of professional skills for engineers high on traditionality in a low innovative culture. Traditionalists who tend to be collectivists are likely to prefer maintaining longer-term relationships with their organizations and view interpersonal skills and relationships as being more valuable than specific job knowledge and skills (Jung & Avolio, 1999). Traditionalists who tend to be individualistic are likely to pursue self-interests and view technical specialties and technology management knowledge of professional skills as being more critical for their career development than interpersonal and business knowledge of professional skills. Due to globalization, acculturation from trade and immigration, these changes could lead more collectivist cultures to become increasingly individualistic and vice versa. This idea purports that Western culture may become more collectivist and Asian culture that includes Taiwan and China is becoming more individualistic (Parker, Haytko, & Hermans, 2009).

Previous research (e.g., Spreitzer, Perttula, & Xin, 2005) reported that traditionality moderates the relationship between leaders' transformational leadership and effectiveness in the Taiwanese context. This study extends the existing research by illuminating the contextual factor of innovative culture from the reciprocity behavior of IT technical engineers. This research also contributes to a better understanding of the innovative culture that currently exists in the Taiwan high-tech sector, and how it acts as a link between a participative style and the development of professional skills. Furthermore, Taiwan has a culture grounded in Confucian ideology that emphasizes a strong respect for hierarchy (Chinese Culture Connection, 1987). It also has a joint in the East-meets-West network after fifty years of Japanese colonization (Chen, Lin, Lin, & McDonough, 2012). Taiwan society is coexisted the traditional and modern characteristics (Liu & Kao, 2002) and has a relatively moderate level of power distance culture, which makes it suitable to examine the constructs in this study. Meanwhile, as the first exploration of the relationships among new management styles, innovative culture, traditionality, and professional skills, the study sheds light on the cultural value dynamics of professional skills in a modest power distance society. It provides useful information concerning the cross-cultural applicability of Western theories of professional skills. More research is needed to test the validity of the present findings, not only in Taiwan but also in many other parts of the world in which traditional values have a strong hold on the psychologies of large portions of the population, such as Africa, or Middle East, such as Kuwait, which has been documented that it exists a cultural tendency of highly toward collectivism and weakly commitment to individualism (Ali, Taqi, & Krishnan, 1997).

The results suggest that focusing only on a management style without considering the wider organizational context may yield disappointing results, and that at least one aspect of employee cultural value orientation—traditionality— is an important component of the relationship between new management styles and employee professional skills. Thus, managers may be well served to focus on behaviors thought to affect employee traditionality. Doing so may enable the managers to avoid the substitution effects of a high innovative culture, and to instead realize the benefits of the combined effects of both management styles and innovative culture on employee professional skills. This study concludes that organizations are able to facilitate the development of professional skills by stimulating an innovative culture under a new participative style, and under a new authoritarian style when employees exhibit high scores of traditionality. These findings clearly indicate that such efforts can be complemented by attempts to build an innovative culture within participative style environments, or by recruiting traditionalist employees within authoritarian style environments. As the new management styles are shown to predict professional skills, organizations can influence this process by promoting an authoritarian or participative style among leaders through selection and leadership development programs.

6. Limitations and extensions

The study is cross-sectional in nature. Inferences about causality are therefore limited. Future studies should investigate these relationships using longitudinal or experimental studies in order to ascertain causality. In addition, support for the three-way interaction between new management styles, innovative culture, traditionality and professional skills was limited. There are several possible reasons why this study did not find strong support for the predicted three-way interaction. One possibility is the hierarchical regression analysis provided a conservative test for high-order interactions (Aiken & West, 1991). Second, it should be noted that managers were asked to rate subordinate professional skills using a general rating scale that did not take into account, among other things, the type of work performed by the subordinate or organizational norms regarding rating professional skills. While this technique allowed for the comparison of professional skills across a common measure, the extent to which the results may have been impacted by perceptual biases is unclear. Third, this model is not exhaustive and can be expanded to incorporate other important variables including other forms of new management styles such as consultative, benevolent, delegative, or paternalistic. This may help to better understand the effects of new management styles from a broader perspective. Future research should also examine the manifestations of new management styles commensurate with different managerial levels. Given that this study was conducted in a limited context (high-tech companies in Taiwan), caution against generalizing the findings to other settings is advised.

References


(Man & Powell, 2004); therefore, it will encourage employees to exert more effort in developing business function skills which are seen as one type of interpersonal skill.


