

Asian and Western Management Styles, Innovative Culture and Professionals' Skills

Abstract

A significant body of research has focused on the conceptualization of management styles as either Asian or Western, with studies showing evidence of a positive relationship between management style and professional skills. Nonetheless, little attention has been paid to how innovative culture affects this link. Based on motivation theory and by treating innovative culture as a reinforcement motivation factor to strengthen employee's learning behavior, hypotheses that assume such links are proposed and tested using a sample drawn from 166 research and development personnel and their supervisors in high-tech industry, evidence is provided showing that innovative culture moderates the relationship between Western management styles and professionals skills, and traditionality moderates the relationship between Asian management style and professional skills. The hypotheses are partially supported, and the managerial implications of the results are discussed.

Keywords: Asian Management Style, Western Management Style, Professional Skills,

Innovative Culture, Reinforcement Motivation Theory

Introduction

It is increasingly clear that the management of R&D professional skills improvement is becoming a more complex and important issue, especially in very competitive and rapidly changing markets. Firms usually manage the dispersed knowledge across members of the organization through a distributed knowledge systems such as knowledge sharing mechanisms (Berends et al., 2006) in order to breakthrough the boundaries of R&D professionals specialize in specific fields and subfields of knowledge and extend their knowledge to the areas of business functional and interpersonal social skills, which are becoming more demanding in R&D job requirements (Berends et al., 2006). However, innovative culture has been shown to have a positive effect on human capital motivation (Marquies et al., 2006). Empirical evidence supporting reinforcement theory has long established that certain antecedents, such as leadership styles and organizational context, i.e. culture, have the capability to direct employee behavior (Luthans & Stajkovic, 1999) and improve their abilities and skills. External influences or extrinsic reinforcement contingencies, such as innovative culture can act as a social reinforcement factor to induce employees' self-directed learning behavior, and thus motivate the improvement of performance and skills.

Motivation theory focuses on the “psychological processes involved with the arousal, direction, intensity, and persistence of voluntary actions that are goal directed” (Mitchell, 1997: 60) and emphasized the factors such as exogenous stimuli as reinforcement theory (Hamner, 1974; Komaki et al., 1991). Motivation is as “an explanation for coherent action” (Munro et al., 1997:5), thus it has been argued that motivation causes behavior. We extend this idea further and contend that innovative culture causes behavior in certain organizational contexts.

Innovative culture is still largely neglected in existing organizational theories of work motivation that provide microfoundational explanations about why and how it reinforces or

improves people skills in the workplaces. In fact, most studies on innovation have focused either on explaining the abilities of individuals, i.e. their creativity or originality (Amabile, 2000; Schneider, 1975), or on organizational innovativeness, such as that expressed in inventions or improved performance (Marquies et al., 2006; Miron et al., 2004; Hurley & Hult, 1998; Ryan & Hurley, 2007). The implicit assumption has been that innovativeness typically corresponds to the improvement of performance to be achieved via innovative culture (Byles et al., 1991; Hauser, 1998; Chow & Liu, 2007; Daniel & Mishra, 1995). While researchers who study innovative culture often point to the outcome-oriented issues involved in the relationship between X and Y, or suggest approaches to managing the characteristics of innovative culture (e.g. Wallach, 1983; Deshpande et al., 1993; Hauser, 1998; Jamrog et al., 2006; Franco & Bourne, 2003; Amabile et al., 1996), there is limited research on the link between innovative culture and professional skills (i.e. varied professional job knowledge), or to the relationship between management style (such as Asian or Western) and professional skills. Furthermore, little attention has been paid to the process of innovative culture, and most studies focus on the related outcomes, with only Van de Ven et al. (1999) treating innovative culture as a learning orientation.

Management style is the set of philosophies or principles by which the management exercise control over the workforce and bind diverse operations and functions together in order to achieve organizational goals. Earlier research found that firms which tend to employ the participative (or Western) management style favor allowing workers to enhance their professional skills (Cheng & Bolon, 1993). In contrast, it has been suggested that centralized decision-making, the traditional Asian management style, which is characterized by paternalistic leadership, collectivist orientation and greater power distance between managers and workers, could impede individual creativity (Thompson, 1965) and hence hold back the development of professional skills. The traditional, more authoritarian management concepts

that are common in Asia or South America (Morris & Pavett, 1992) are thus not expected to do well in fast-changing global markets (Wright et al., 2000). However, the negatives supposedly inherent in such a traditional management philosophy could be alleviated if the workforce has a suitable personality, i.e., employees are not opposed to being led by an authoritarian system (Farh et al., 2006). However, there should still be an alignment between the management style and an innovative culture, and if a good fit could be achieved between a specific style and culture, professional skills can still be enhanced. In support of this, a few studies, such as Hempel and Chang (2002), indicate that the overseas Chinese have become successful by sticking to the business sectors compatible with their preferred management style.

The purpose of this paper is to expand existing understandings of work motivation by discussing how innovative culture motivates the employees' willingness to share their knowledge, and thus enhances their professional skills. To accomplish this, we examine firstly the influence of management style (Western or Asian) on the improvement of professional skills. Moreover, we examine the relationships among innovative culture, management style and professional skills in order to find out if the high-tech sector has an innovative culture, using a sample drawn from high-tech R&D professionals, and focusing on the moderating effects of innovative culture on management style and professional skills.

Theoretical background and hypotheses

Firms have long realized that professional skills play a crucial role in attaining and maintaining competitive advantage, for the majority of added value in many businesses is now produced by intellectual capital. In addition, the more complex a technology, the more skilled the related workers need to be (Lawler, 1985). The enhancement of employees' professional skills has thus become a top priority in the drive to increase organizational

innovation. However, how does a company improve its professional employees' skills?

Studies have found that environmental factors in the workplace, such as motivation from the organization, management style and corporate culture, are key determinants that influence both employees' output as well as their personal development.

Management Style

Asian and Western management styles

Management style is a preferred way of managing people in order to bind diverse operations and functions together (Schleh, 1977), as well as to exercise control over employees (Clear & Dickson, 2005), and is considered as a set of practices that has been adopted either by an individual, a department, or whole organization (Morris & Pavet, 1992). Extensive research has distinguished management styles into two broad types, authoritarian (or traditional) and participative (or democratic) (Morris & Pavett, 1992; McBer & Company, 1980; Likert 1967, Likert & Likert, 1976; McGregor, 1960; Beehr & Gupta, 1987). Furthermore, many studies have found that management styles and philosophies are anchored in the cultural values of a firm's home country (Poon et al., 2005; Anwar & Chaker, 2003, Hofstede, 1991, 2001; Morris & Pavett, 1992; Newman & Nollen, 1996; Chen, 2001; Cheng, 1995; Trompenaars & Hampden-Turner, 1998; Westwood & Posner, 1997). Asian management is generally seen as deal-oriented (Clarke, 1998), with rigid hierarchies (Lok & Crawford, 2004) in which managers tend to make centralized decisions (Tan, 2002; Beehr & Gupta, 1987; Wright et al., 2000). It has also been characterized as autocratic (Liu, 1986a, 1986b) and directive (Barret & Bass, 1976; Wright et al., 2000), due to centralized control and minimal work empowerment (Beehr & Gupta, 1987; LaBier, 1986; Likert, 1967), with the overall philosophy one that promotes collectivism (Tan, 2002). In contrast, Western management style has been characterized as focusing on communication by interaction (Lawler & Rhode, 1976), in addition to emphasizing procedure (Wright et al., 2000; Fu et al.,

2004; Deming,1985; Shigemi, 1979) and being process-oriented (Clarke, 1998). For Western firms, leadership style is both supportive and participative towards the workforce (Likert, 1967; Likert & Likert, 1976; Hampel & Chang, 2000), with transformational leadership, dogmatism (Wilmar,1978), a locus of control and intolerance of ambiguity (Tan, 2002).

This study draws on Clarke’s (1998) concept of Western and Eastern management ideas, Likert’s system four management theory(Likert, 1967;Likert & Likert, 1976), which distinguishes management style into autocratic and participatory modes, and Hofstede’s notion that a higher power distance exists in the more authoritarian (Tan, 2002; Hofstede, 1980; Chen, 2001; Whitley, 1997; Pye, 1985), Asian management style, and a lower one in the Western one. More explicitly, we follow Likert’s system four management theory and use its six management style dimensions: decision-making, control, leadership, communication, goal and motivation, and add in another concept, power distance to develop a whole new perspective. Accordingly, we characterized Asian management style as being authoritarian in nature and having high power distance, and Western management style as being more democratic or participative. Table 1 shows the differences between Asian and Western management styles in more detail.

Insert Table 1 about here

Professional skills

The job skills required for professionals are determined by the tasks they are to accomplish in their work environment(Leitheiser, 1992). Technical skills that is domain-relevant ones such as programming skills, hardware expertise, skills regarding the application field of the software and technology management, are essential for IT (Information Technology) related R&D professionals. However, R&D professionals must recognize that technical expertise alone is not sufficient, and the related job requirements are becoming more demanding in multiple dimensions, particularly in the areas of business functional knowledge and

interpersonal skills (Leitner, 1992). Individuals who possess both technical and business problem-solving skills can help R&D teams to rapidly develop and deploy critical systems based on the market and strategic demand, which can help organizations build the competence necessary to sustain long-term competitive advantage (Clark et al., 1997; Ross et al., 1996). In addition, the social or interpersonal skills that enable successful interaction with other people and effective communication are also considered to be important in enabling employees to collaborate better on common tasks (Hoegl & Parboteeah, 2006).

Innovative culture

Innovative culture is a set of shared norms that develops and establishes the values, views and attitudes necessary to foster experimentation and creativity. This kind of culture encourages individuals to develop their ingenuity, originality and inventiveness (Hood & Koberg, 1991). When such norms are widely shared and strongly held by employees, they can actively promote the generation of new ideas and help in the exploration of new approaches (O'Reilly, 1989). Many recent studies have found that tolerance of mistakes, risk-taking, high autonomy and low bureaucracy are the most prevalent characteristics of an innovative culture (Brown & Eisenhardt, 1998; O'Reilly, 1989; O'Reilly et al., 1991; Scott & Bruce, 1994; Van de Ven et al., 1999; Miron et al., 2004; Hood & Koberg, 1991). Specifically, when an organization is more tolerant of mistakes, in a way that is responsive to change and expects more achievement, then more ideas are likely to be produced and new approaches developed. Moreover, when a firm encourages teamwork, operational autonomy or employee support, it enhances knowledge sharing (Galia, 2008) and aids knowledge transfer and learning (e.g. Fiol & Lyles, 1985; Huber, 1991; Aubrey & Cohen, 1995). Hence, we propose that an innovative culture is a reinforcement motivation factor to induce employees to share and transmit their knowledge and experience, and thus will facilitate self-directed learning behavior among employees.

Asian and Western management styles and professional skills

Earlier studies, based on Maslow's theory, have found that knowledge workers are motivated to share their knowledge, due to a desire for self-actualization (Stott & Walker, 1995; Tampoe, 1996). Further, under the decentralized structure, one of the characteristics of Western style management, employees are more willing to share their opinions as it allows them to participate in the organization and have a greater discretion or autonomy, the level of autonomy directly determines if people are innovative in their work (Bailyn, 1985; Munton & West, 1995; West, 1987), and is treated as a motivator by Herzberg's theory (Herzberg, 1958). Autonomy also allows the employees to generate innovativeness idea and new prospects, and their professional skills will also be improved when they are granted the freedom or to have more job involvement to pursue the organization's goals by whatever means they decide, and this will also motivate them to learn. Hence, Western management style is expected to encourage professionals to improve their skills, and thus there will be a positive relationship between Western management style and professional skills.

Hypothesis 1: Western management style will positively influence professional skills.

In contrast, authoritarian relationships aim to accomplish the goals of communication and coordination through a hierarchical management system (Lawler & Rhode, 1976), which could be particularly detrimental to the performance of professionals because of the limited autonomy such systems entail (Engel, 1970; Redding, 1990). Professionals may feel frustrated in such environments, and consequently, might suffer from a lack of energy, and attention, with regard to their work. As a result, their creativity might be stifled and their development of abilities or skills might be constricted (Aksu & Ozdemir, 2005). However, when employees have high scores on a measure of Chinese traditional cultural value, or traditionality, which means that they are less likely than others to base their attitudes and behavioral responses on how authority figures treat them (Gabrenya & Hwang, 1996), they are willing to respect hierarchies in society (Yang et al., 1989) and be obedient

to individuals who hold power and prestige in the organization. In turn, such employees will get more trust for their conformity, and are more likely to receive adequate work resources and benefits from their supervisor (Farh et al., 2006) to improve their abilities or skills. Hence, when employees view Asian management styles more favorably, their professional skills could be improved. Accordingly, we argue that there is a positive relationship between Eastern management style and professional skills when professionals rate high on a measure of traditionality.

Hypothesis 2: Asian management style will positively influence professional skills when the professionals who rate high on a measure of traditionality.

Several studies support the assertion that professional employees may resist the influence of a certain type of hierarchical leadership (Ford, 1981; Presthus, 1978), but does this imply that non-hierarchical, such as a democratic management style, are predominant in professional settings? Similarly, will more democratic or unrestrained management styles be more acceptable to professionals? Researches into organizational performance and employee satisfaction have hypothesized the importance of democratic rather than with autocratic management (Foels et al., 2000; Lok & Crawford, 2004), and that the effect becomes larger as the relative difference between a democratic and an autocratic leader increases (Foels et al., 2000). Furthermore, research has also suggested that a participative management style will be more productive in any culture (Likert & Likert, 1976; Argyris, 1970; Lawler, 1985). Thus, the supportive leadership style, which focuses on enhancing relationships and participatory decision making, is more efficient with regard facilitating the enhancement of professional skills than the directive leadership style (Yeh, 1996), which emphasizes telling and directing to get tasks done.

Hypothesis 3: The effects of Western management style on professional skills are more salient than those give of Asian management style.

Innovative culture as a moderator of management style – professional skills

How does a firm's management style affect its professionals' skills? The above discussions on management style describe a firm's working environment, but professionals' skills are not simply a function of these characteristics. Instead, these characteristics and professional skills are contingent upon another important factor: innovative culture. This suggests that employees may not reach high levels of professional skills when an innovative cultural context does not exist to encourage this. In fact, this argument rests on the assumption that corporate culture is an integral organizational influence on member behavior, and that an innovative culture, which encourages initiative rather than obedience and dependence, could encourage employees to consider new ways of thinking and executing their work when they realize that management approves of such innovations.

Based on above discussion, innovative culture influences and strengthens the behavior of organizational members toward common goals, and thereby acts as a reinforcer to encourage members to share and, feedback knowledge with each other, and this intangible learning mechanism further motivates individuals to continue learning(Levinthal & March, 1993). Meanwhile, recent theoretical and empirical advances make it evident that innovative culture moderates the relationship between individual characteristics and the innovation-use behavior(Choi, 2004), that is associated with IT employee job satisfaction and the motivation to transfer learning and transmit newly acquired knowledge to the workplace. Therefore, it would be reasonable to assume that an innovative culture could help individual's professional skills enhancement. This further extends the explanation of professional skills improvement to be associated with the firm specific contexts, innovative culture and management style.

The level of professional skill improvement varies depending on whether an organization has an innovative culture. When a firm has a high innovative culture, it strongly motivates the employees' knowledge or experience sharing intention, e.g. R&D professionals share narratives on how research or innovation materializes in daily activities, and thus reinforces their learning behavior, and so, facilitates the improvement of their existing or new skills. In contrast, a low level of innovative

culture, i.e. one that is demanding of employees or is rule-oriented, will discourage knowledge sharing intention among members. We argue that when the management style best suits the professionals and is matched with an innovative culture, there is a significant effect on the link between innovative culture and professional skills. Based on this discussion, we conclude that innovative culture acts acting as a positive reinforcement factor for the enhancement of professional skills. Further, if the moderating effect exists, wider conclusions could be derived from adjusting the emphasis on high innovative culture. This may help firms to conceive management style and innovative culture as tied properties in explaining professional skills.

Hypothesis 4: Innovative culture moderates the relationship between the perceived management style and professional skills in such a way that the relationships are stronger when here is a high level of innovative culture.

Methods

A preliminary questionnaire was given to five IT workers from three industries in Taiwan (Electronic, Semiconduction, Communication and Electro-Optical), and after some minor changes a test was given to 250 hundred individuals. Of these, 170 were returned, giving a response rate of 68%, whereas, 65 of the respondents were supervisors and 101 were the technical people in R&D and FAE(Field Application Engineering). The participants were mostly males(86.7%) and relatively young(60.2 percent were less than 35 years of age); fairly well educated(there is 47% had got their Masters degree); and the tenure of largest group of the participants was 5.1-10 years (33.7%). Table 2 shows the detailed information on the respondents.

Insert Table 2 about here

Measures

Unless otherwise noted, all multi-item scales were measured on a seven-point scale (1=

strongly disagree, 7=strongly agree'). Additionally, all scales were translated into Chinese from English, and, all materials were presented in Chinese.

Control variables

The most important variables that need to be controlled to detect to impact of organizational culture are firm size (Mansfield, 1963) and firm age. Firms that find success become less innovative as they become larger and more bureaucratic(Robey, 1991); meanwhile, most small to medium-sized enterprises are more supportive of an innovative culture(Chandler et al., 2000). In this paper, firm size was operationalized as the number of people in the company. In addition, high levels of education have been found to be related to traditionality (Farh et al., 1997), and this was also taken into account, along with length of tenure will be the factor needed to be controlled in this study too.

Management style

This was measured by a 23-item scale, which was combined from the questionnaires in Likert and Likert(1976) and Earley and Erez(1997), tapping the degree of employee recognition toward management style. Specifically, we adopted the eighteen items used Profile of Organizational Characteristics Questionnaire from Likert and Likert(1976), in which the original version of each question was scored on a 20-point, Likert-type scale, with a low score for a question representing a tendency to an autocratic managerial style, and a high score representing a tendency to participative one. However, we changed the 20-point scale into a 7-point ranging from 1 'strongly disagree' to 7 'strongly agree'. We also changed some of the questions. For example, we used the question "We can talk freely with our supervisor about matters related to work." , instead of "How free do employees feel about talking to superiors about the job?", and used "My supervisor knows exactly the problems I faced in my works" instead of "How well do superiors know the problems faced by subordinates?". We also added a power distance questionnaire, which included an eight-item scale assessing the

degree of employees' recognition of management power distance in this construct, adapted from Earley and Erez(1997) . Studies that have used this scale include Brockner et al.(2001) (alpha=0.74), Earley(1999)(alpha=0.81), and Yang et al.(2007) (alpha=0.73). A sample item is “In most situations managers should make decisions without consulting their subordinates”. Consequently, firms whose scores were less than 3.5 were classified as having Asian management style, while firms whose scores were greater than 3.5 were classified as having a Western ones. In this study, the coefficient alpha of the Western management style was .89, while that of the Asian management style was .74.

Innovative culture

This was measured by seven items adopted from Menon et al(1999), and the reliability estimate was greater than .60. A sample items is “People in this division stress quick response to changing market conditions”. Firms whose scores were less than 3.5 were classified as having a low innovative culture, while those with scores greater than 3.5 were classified as having a high innovative culture. In our study, the coefficient alpha is .87.

Professional skills

Professional skills are used as the dependent variable. We adopted the questionnaire from Lee et al. (1995), which includes technical specialties knowledge, with a coefficient alpha of .90; technology management knowledge, with a coefficient alpha of .71; business function knowledge, with a coefficient alpha of .85, and interpersonal and management skills, with a coefficient alpha of .91. However, we revised the questions on technical specialties knowledge because the original dimension was designed for IS instead of IT professionals. To determine which actual technical specialties knowledge to include in this survey we first consulted the literature, then experts in various R&D disciplines of IT, and then new items such as “professional technical knowledge (software design knowledge; hardware design knowledge; system integration knowledge; system testing knowledge)”; “software

management knowledge; hardware management knowledge; system integration management knowledge; technical support management knowledge”; “specialized application techniques knowledge” and “other electronic and computer related engineering knowledge” were developed. A 20-item questionnaire assessed these four variables and a 7-point Likert-type scale ranging from 1 ‘strongly disagree’ to 7 ‘strongly agree’ was used. Other sample items also included: “ability to learn 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 .94; The coefficient alpha of technology management knowledge was .88; The coefficient alpha of business functional knowledge was .94; The coefficient alpha of interpersonal and management skills was .84.

Traditionality

This was measured with items from Farh et al.(2007), and include five items , such as “When employees are in dispute, they should ask the most senior person to decide who is right”. Other studies that have used this scale include Farh et al(1998) coefficient alpha=.60; Farh et al.,(1997) coefficient alpha=.76; Hui et al., (2004) coefficient alpha=.74; Farh et al(2007) coefficient alpha=.68. In our study, the coefficient alpha was .80.

Results

Confirmatory factor analysis

Because the two constructs in our study, management style and professional skills were related conceptually, we performed a series of CFAs to verify the constructs’ distinctiveness before testing the hypotheses. The first group of tests focused on the two management style dimensions. A CFA of this two-factor (10 items) base model yielded fit indexes within an acceptable range($\chi^2 = 67.517$, $df=34$, $RMSEA=.099$, $CFI=.942$, $GFI=.904$, $p=.001$), and then a CFA of the four-factor professional skills dimension (14 items) base model yielded fit

indexes within an acceptable range ($\chi^2 = 107.073$, $df=68$, $RMSEA=.095$, $CFI=.952$, $p=.002$).

Descriptive statistics

Table 3 provides the descriptive statistics and correlation matrix for the variables used in this study. The zero-order correlation between Western management style and technology management knowledge was $.686(p < .01)$; However, for neither variable did it reach the level of 0.8-0.9, and thus there was no problem of multicollinearity problem in the interactions (Kennedy, 1984, p. 131).

Insert Table 3 about here

Hierarchical regression analyses

The five hypotheses were tested via multiple regression analysis (Aiken & West, 1991). We tested Hypothesis 1, 2 and 3, concerning the main effect of management style, by regressing professional skills on management style while controlling for firm size, education and tenure (Models 1 and 3). Hypothesis 4, concerning the moderating effects of innovative culture, was tested by three separate moderated regression models (Model 2 for innovative culture, Model 4 for the moderating effect of innovative culture, Western management style, and Asian management style). Finally, the results of the test of are shown in Tables 4. Table 4 gives the results of the test of Hypotheses 1-4 for each outcome variable, given under columns labeled by the relevant model.

Main effects of management style (Hypotheses 1, 3)

Western management style had a significant, positive effect on technical specialties knowledge ($\beta=.542$, $p < .005$), technology management knowledge ($\beta=.681$, $p < .005$), business functional knowledge ($\beta=.644$, $p < .005$) and interpersonal and management knowledge ($\beta=.579$, $p < .005$), Hypothesis 1 was thus supported. Western management style has a greater influence than Asian management style on technical specialties knowledge, technology management knowledge, business functional knowledge and interpersonal and management skills, and

thus, the effects given by Western management style are more salient than those given by Asian management style. Hypothesis 3 was therefore supported.

Moderating effects of traditionality (Hypotheses 2)

Traditionality moderates the relationship between Asian management style and technical skills ($\beta=.223, p<.01$), technology management ($\beta=.270, p<.005$), business function ($\beta=.200, p<.05$), interpersonal and management ($\beta=.180, p<.05$) as shown in model 3 of Table 4.

Figure 2 presents a graph of a typical significant interaction effect for traditionality. This relationship between Asian management style and technical skills is positive and significant for the low and high traditionality group, and the results provide support for Hypothesis 2.

Moderating effects of innovative culture (Hypothesis 4)

Table 4 shows a significant moderating effect of innovative culture on the relationship between Western management style and professional skills. Specifically, the beta coefficient of the interaction term (Western management style by technical specialties knowledge) was statistically significant ($\beta=-.331, p<.005$). The addition of an interaction term significantly increased the predictive power of the model in explaining the variance of technical specialties knowledge ($\Delta R^2=0.592, \Delta F=9.083, P<0.005$), and interaction effects can thus be said to exist. In further support of Hypothesis 4, Table 4 (see model 3) shows that innovative culture significantly moderated each of the other relationships between Western management style and professional skills in the predicted direction (technology management, $\beta=-.206, p<.005$; interpersonal and management, $\beta=-.285, p<.005$), but not moderate the relationship between Western management style and business function. The results also show that Western management style has a negative and significant impact on professional skills. Specifically, the sign of the beta weights for the interaction effects was negative for all professional skills.

To further clarify the interaction effects of innovative culture, we examined separate simple slopes depicting the relationships between Western management style and professional skills

measures. Separate plots were drawn for individuals whose scores on the moderator were one standard deviation below the mean, and one standard deviation above the mean (Cohen & Cohen, 1983). For technical specialties knowledge, the slopes (betas) were all positive and significant. Figure 1 presents a typical significant interaction effect for innovative culture —its moderation of the relationship between Western management style and technical skills. The plot also shows that when innovative culture is high, the relationship between Western management style and technical specialties knowledge is positive. The slope of high innovative culture is more significant than low innovative culture in the relationship between Western management style and technical specialties knowledge and between Asian management style and technical specialties knowledge. The above results provide partial support for Hypothesis 4.

Insert Table 4 about here

Insert Figure 1 about here

Insert Figure 2 about here

Finally, the results provide partial support for Hypothesis 4, and the relationship between management style and professional skills is indeed moderated through firm's innovative culture. In sum, the empirical result appears to confirm that Western and Asian management style affect professional skills when innovative culture and traditionality moderates the relationship respectively.

Discussion

In this article we have explored the crucial role of innovative culture in work motivation. Meanwhile, the major contribution of this research is investigating how management styles may affect the professional skills of employees in R&D environments, and how innovative culture can be a reinforcement motivation factor to induce employees to share and transmit

knowledge and experience to help others and improve their skills. We first defined the concept of innovative culture and two types of management style (Asian and Western) and then illustrated that each relationship between management styles and professional skills varies significantly when the kind of innovative culture changes. Moreover, moving beyond the implicitly adopted assumption that innovative culture causes the motivational processes, we have shown that it has impacts on those behavioral outcomes in ways that are moderated by an innovative culture. These findings support our hypotheses regarding the contingency on the relationship between management styles and professional skills, and partially support our hypotheses on the interaction between management styles and professional skills. Thus it is shown that an innovative culture acts as reinforcement motivation factor to improve professional's technical specialties knowledge, technology management and interpersonal skills knowledge when the behavior of sharing knowledge and experience is induced.

Our research points to several important motivational implications of innovative culture in work. First, earlier studies have generally emphasized on the intrinsic motivation in the context of employee creativity in applied settings (Dewett, 2007), as well as argued that the motivation causes behavior and focuses on the role of innovative culture with regard to either the improvement of performance or its characteristics, and on outcome-oriented issues. In this study, we extend the literature and contend that innovative culture causes behavior under specific organizational contexts, and treat it as an extrinsic reinforcement factor for motivating the employees to share their knowledge and experience, facilitating themselves and the others to adopt self-directed learning behavior to enhance professional skills. This is based on the notion that, according to motivation theory, people share knowledge because they expect or hope for recognition and appreciation of their (knowledge) work, as well as reciprocity, that is, that others too will share knowledge that may be useful. Second, this study explores the link between innovative culture and professional skills, and on the

relationship between such skills and Western and Asian management styles. We also found that the interaction of traditionality on the link between Asian management style and professional skills was supported. Interestingly, innovative culture does not influence business function, although understanding business functions, knowing how to communicate effectively could serve IT professionals better than technical expertise. This perhaps implies that business functions are not so easier to be influenced by innovative organizational culture. In addition, R&D professionals might need more time to learn to build the skills, and the reason probably contributes to that business function skills focus on the areas of knowledge that are not specifically IT-related (Bassellier & Benbasat, 2004), especially when using business function skills are part of their daily work. We are also challenged to explain how the interaction between innovative culture and Western and Asian management styles with regard to professional skills is negative both instances, as this finding could be purely anomalous.

Finally, our research also contributes to a better understanding of the innovative culture that currently exist in Taiwan's high-tech sector now, and how it acts as a link between Western management style and professional skills improvement.

Managerial implications

Given the importance of innovative culture as a contextual factor, the following questions arise: Where does innovative culture come from, and how can it be fostered within organizations? As innovative culture consists of shared norms about novel and new idea generation and exploration, and reflects a learning orientation (Amabile, 1996; Glynn, 1996) that facilitates inventiveness (Cohen & Levinthal, 1990) to pursue new knowledge (Levinthal & March, 1993), it may help to look at the social cognitive and psychology literature. Consequently, organizations should try to boost innovative culture by anchoring novel norms in their organizational vision and mission and by promoting their importance in everyday

business. Although our findings shows that using Western or Asian management style in organizations with an innovative culture is unlikely to lead to the improvement of employees' professional skills with regard to business function knowledge, it does have a significant influence on technical specialties knowledge, technology management and interpersonal skills. Accordingly, we are not entirely dismissing the importance of Western and Asian management style and their alignment with innovative culture and traditionality respectively.

We conclude that organizations are able to facilitate the improvement of professionals' skills by stimulating an innovative culture with a Western management style, and with an Asian management style when employees who have high scores on a measure of traditionality. As management style was shown to predict professional skills, organizations can influence these by promoting an Asian or Western management style among leaders through selection and leadership development programs. From a practical standpoint, the present findings also clearly indicate that such efforts should be complemented by attempts to build an innovative culture in Western management style environments, as well as to recruit the traditionalism employees in Asian management style ones. Here, an innovative culture refers to a complex set of beliefs and ways of doing things that influences an organization's perspective on how innovation and change should be managed, which can be created through a system or people's beliefs, such as participative decision making and learning and development processes (Hurley & Hult, 1998). Furthermore, organizations may profit from such combined efforts, previous research has shown that firm earnings can be enhanced by innovative culture (Chandler et al., 2000), and that professional skills improvement can produce high-quality innovations and performance.

Limitations and extensions

In addition to these contributions, our study is not without limitations. First, it was applied to a limited context, drawing upon data only from high-tech companies in Taiwan, thus making

thus the generalizability of the findings limited. It would, therefore, be interesting to further investigate whether similar relations obtain in other industries and/or cross-cultural contexts. Second, our study could be criticized for the small sample size of 166. However, finding relationships, especially moderating effects, in a relatively small sample indicates large effect sizes (Cohen, 1992). Third, this study relied on a single measure to assess professional skills, since its focal point was to investigate the constructs of innovative culture, management style and professional skills simultaneously. However, in future work it would be better to use additional measures to better capture professional skills.

Table 1

The summary of difference between Asian and Western management styles

	Asian Style	Western Style
control	hierarchical authority structure(Clarke, 1998);	contracts and due diligence(Clarke,1998) ; organization (flatter) structure(Clarke,1998); preferring decentralized control(Wright et al.,2000)
decision-making	centralized and single-decision maker(centralized control adoption) (Tan, 2000;Beehr&Gupta, 1987)	to be corporate decision-making(Wright et al.,2000); group-based decision-making(Poon et al., 2005)
leadership	paternalistic(Lok&Crawfor, 2004; Morris & Pavett,1992; Martinez, 2005;Westwood,1997;Farh & Cheng,2000; Pellegrini&Scandura,2008); relationship-based and authoritarian leadership styles (Wright et al.,2000; Likert, 1967,1976;Liu,1986a, 1986b);dierective(Barret &Bass, 1976; Wright et al., 2000)	Participative and consultative(Likert, 1967,1976); consultative(Tixier, 1994)
communication	focus on deal-oriented(Clarke,1998) ;human side of a relationship and personal behavior(Yau & Powell, 2004)	Function-oriented expression(Martinsons, 1994, 1996)
goals	harmony fundamental(familial networks) (Clarke, 1998; Theimann et al., 2006)	process-oriented(Clarke,1998)
motivation	collectivism(Wright et al., 2000;Barret&Bass,1976;Bochner, 1994;Hesketh, 1994;Tayeb,1996; Hofstede, 2001)	promote individualism (Chen, 2001; Kahal, 2001)
power distance	high power distance(Hofstede, 1980;Tan, 2002;Wright et al., 2000)	low power distance(Hofstede, 1980;Hofstede & Brond, 1988)

summaried in this study

Table 2

Demographics characteristics of participants (N=166)

Characteristic	n	%	Characteristic	n	%
Gender			Tenure		
Male	144	86.7	below a year	22	13.3
Female	22	13.3	1.1-3	61	36.7
Age			3.1-5	40	24.1
Below 25	5	3.0	5.1-10	25	15.1
25.1 - 30	44	26.5	10.1-15	2	1.2
30.1 - 35	51	30.7	15.1-20	3	1.8
35.1 - 40	36	21.7	20.1-25	1	0.6
40.1 - 45	25	15.1	Industries		
45.1 - 50	3	1.8	Telecommunication	97	58.4
55.1 - 60	2	1.2	Semiconduction	16	9.6
Highest Education(completed)			Electronics	40	24.1
Junior College	14	8.4	Electro-Optical	13	7.8
Bachelor	68	41.0	Firm Size(Employees)		
Master	78	47.0	101-300	43	25.9
Ph.D	2	1.2	1501-2000	40	24.1
Total Working Years			2000-3000	25	15.1
below a year	9	5.4	3001-4000	34	20.5
1.1-3	25	15.1	more than 6000	24	14.5
3.1-5	24	14.5	Firm Age(years)		
5.1-10	56	33.7	1.1-3	18	10.8
10.1-15	33	19.9	6.1-10	25	15.1
15.1-20	14	8.4	10.1-15	49	29.5
20.1-25	4	2.4	20.1-25	59	35.5
25.1-30	1	0.6	40.1-50	15	9.0

Table 3**Mean, Standard Deviation and Correlation among the variables**

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Firm Size	4.313	2.190										
2. Education	3.388	1.063	-.236**									
3. Tenure	3.420	1.498	-.221**	0.462**								
Management Style												
4. Western Management Style	4.935	.986	.200*	-0.009	.034							
5. Asian Management Style	4.320	1.554	.300**	-.092	-.215**	-0.064						
Traditionality												
6. Traditionality	3.564	1.305	-.102	-.290***	.054	.168	-.510**					
Innovative Culture												
7. Innovative Culture	5.193	.959	.230**	-.080	-.002	.719**	-.093	.244**				
Professional Skills												
8. Technical specialties knowledge	5.224	.932	.265**	-.060	-.077	.555**	.005	.161	.677**			
9. Technology management knowledge	5.039	1.109	.184*	.016	-.009	.686**	.004	.172	.702**	.704**		
10. Business functional knowledge	4.824	1.181	.124	-.023	.032	.648**	.009	.183	.663**	.643**	.780**	
11. Interpersonal and management skills	5.269	1.005	.155*	.123	.085	.593**	.018	.081	.627**	.690**	.707**	.740**

*Correlation is significant at the 0.05 level(2-tailed). **Correlation is significant at the 0.01 level(2-tailed).

Table 4

Moderated regression analysis of, management style, innovative culture and their interaction with professional skills as the dependent variable

(n:=166)

independent	technical specialties				technology management				business functional				interpersonal and management			
	model 1	model 2	model 3	model 4	model 1	model 2	model 3	model 4	model 1	model 2	model 3	model 4	model 1	model 2	model 3	model 4
Controls																
Firm Size	.148*	.150	.126	.116	.059	.083	.059	.048	-.007	.060	.041	.031	.066	.154	.124	.116**
Education	.018	.086	-.005	.038	.044	.156*	.106	.142*	-.030	.117	.070	.108	.126	.263***	.192*	.218
Tenure	-.099	-.162	-.096	-.147*	-.045	-.007	.068	.006	.034	.043	.089	.034	.023	-.042	.003	-.039
Main effects																
Western ξ	.542***	.524***	.191	.167	.681	.634***	.312***	.280***	.644***	.598***	.360***	.336***	.579***	.504***	.136	.115
Asian Sty	-.020	.128	.169*	.168*	.038	.037	.093	.058	.061	.018	.037	.030	.063	.082	.140	.121
Traditionality(M1)		.200*		.086		.132		.035		.128		.069		.138		.031
Innovative Culture(M2)			.486***	.454***			.510***	.486***			.377***	.348***			.498***	.480***
Interactions																
Asian Style x M1		.223**		.194*		.270***		.0248***		.200*		.193*		.180*		.165*
Western Style x M2			-.311***	-.270***			-.206***	-.167*			-.145	-.106			-.285***	-.258***
Asian Style x M2			.007	.068			-.054	.018			-.007	.049			.059	.108
R2	.355	.509	.604	.637	.484	.584	.641	.653	.415	.486	.510	.487	.370	.441	.558	.580
Δ R2	.282	.343	.086	.103	.436	.457	.046	.090	.389	.036	.020	.046	.313	.029	.068	.085
df	2, 151	4, 86	2, 85	3, 83	2, 152	4, 87	2, 86	3, 84	2, 151	1, 86	2, 85	3, 83	2, 152	1, 87	2, 86	3, 84
Δ F	33.056***	14.997***	9.223***	7.872***	64.151***	23.885***	5.497**	8.134***	50.221***	5.956*	1.710	2.764	37.799***	4.490*	6.650***	5.674***

Notes.***:p<.005; **:p<.01; *:p<.05, two-tailed tests

Figure 1

The moderating effect of innovative culture on Western management style and technical specialties knowledge

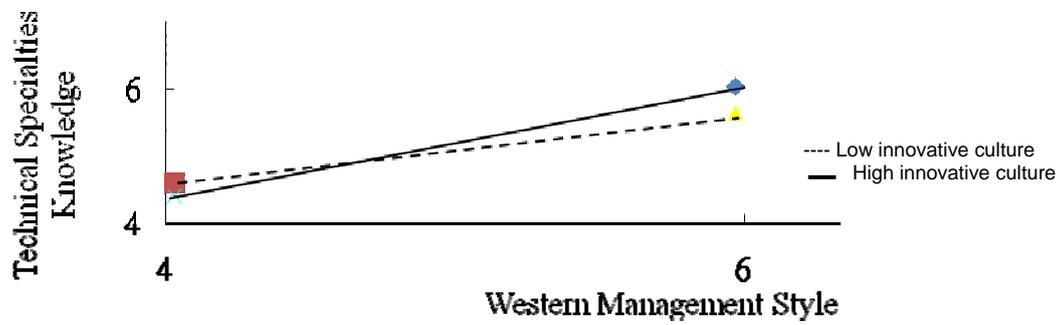
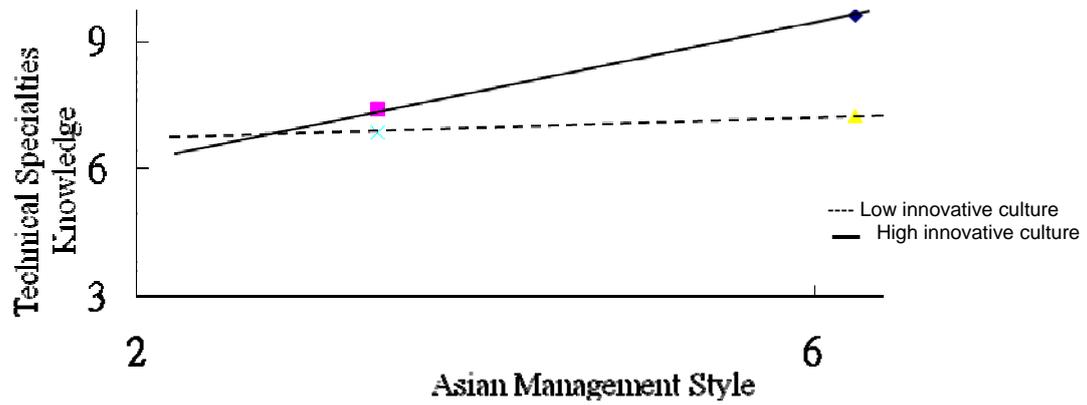


Figure 2

The moderating effect of traditionality on Asian management style and technical specialties knowledge



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