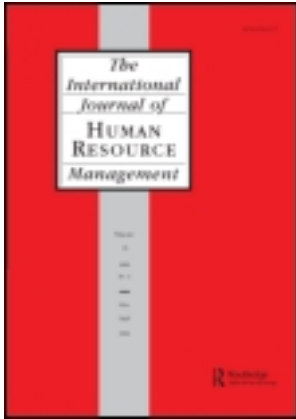


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Publisher: Routledge

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## The International Journal of Human Resource Management

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rjih20>

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Published online: 04 Oct 2010.

To cite this article: Tzu-Shian Han, Hsu-Hsin Chiang & Aihwa Chang (2010) Employee participation in decision making, psychological ownership and knowledge sharing: mediating role of organizational commitment in Taiwanese high-tech organizations, *The International Journal of Human Resource Management*, 21:12, 2218-2233, DOI: [10.1080/09585192.2010.509625](https://doi.org/10.1080/09585192.2010.509625)

To link to this article: <http://dx.doi.org/10.1080/09585192.2010.509625>

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## **Employee participation in decision making, psychological ownership and knowledge sharing: mediating role of organizational commitment in Taiwanese high-tech organizations**

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This study aims to investigate the effect of employee participation in decision making (EPDM) on employees' positive cognition and attitudes which can lead to their knowledge-sharing behaviour. Consistent with the philanthropic and justice principles of Confucianism, such participation emphasizes the sharing of power with employees, which can satisfy employees' humanistic needs, give employees a fundamental right to extend a degree of control and psychologically experience ownership of the organization. Employees who perceive they have ownership of the organization regard themselves as important organizational members and then commit to the organization. Knowledge-sharing behaviour contributes to the creation and utilization of knowledge; therefore, high-tech organizations always carefully negotiate with internal power relations in order to make tacit knowledge shared and produce innovation. Psychological ownership makes employees produce organizational commitment which can evoke altruistic spirit, contributing to knowledge-sharing behaviour. However, researchers have not yet investigated the relationships among EPDM, psychological ownership, organizational commitment, and knowledge-sharing behaviour, revealing an important research gap. Statistical analysis of 260 samples involving high technical and knowledge-intensive companies in Taiwan was undertaken. Theory-driven approach and structural equation modeling were the main methodologies employed. Results showed that employee participation in decision making was a positive association with psychological ownership. Psychological ownership was positively related to organizational commitment. A positive relationship existed between organizational commitment and knowledge sharing. Organizational commitment mediated the relationship between psychological ownership and knowledge-sharing behaviour. Important implications for academics and practitioners were discussed.

**Keywords:** employee participation in decision making; high-tech organization; knowledge sharing; mediating role; organizational commitment; psychological ownership

### **Introduction**

In the era of the knowledge-based economy, knowledge management has become increasingly important to organizations. However, there are large gaps in the research on the implementation of knowledge management and the mechanisms that turn knowledge into competitive advantage. Previous studies relatively overweighed the managerial systems, cultures and organizational structures which contribute to knowledge management (Cohen 1998; Hargadon 1998; Krogh 1998; O'Dell and Grayson 1998), or case study (Scarborough and

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Swan 1999). Furthermore, the operational research of knowledge management focused on knowledge acquirement (Senge 1990; Teece 1998), knowledge creation (Nonaka and Takeuchi 1995) and knowledge utilization (Gold, Malhotra and Segars 2001; Markus 2001). Organization-level research focused on the practices of human resource management (HRM), organizational structure, culture and learning, all of which can enhance the capability of knowledge management (Collins, Smith and Stevens 2001; Collins and Smith 2006). Studies at the team level have discussed innovativeness of knowledge created, speed of knowledge creation and speed of knowledge transfer between teams, all of which influence on knowledge management efforts (Gibson, Waller, Carpenter and Conte 2007). At the individual level, most studies have focused on the effects of organizational justice and trust on knowledge sharing (Lin 2007). Among these practices of knowledge management, knowledge sharing is the most important because the stronger the knowledge sharing of an organization is, the greater degree of organizational effectiveness it will have (Yang 2004).

According to prior research, the antecedents of knowledge sharing are mostly focused on personality (Matzler, Renzl, Muller, Herting and Mooradian 2008), trust (Mooradian, Renzl and Matzler 2006; Sharratt, Tsui and Shekhar 2007), organizational justice (Ibragimova 2006). However, relatively fewer studies have investigated the relationship between employee participation in decision making and knowledge sharing, and its intermediating factors (e.g., organizational commitment). This negligence overlooks some of the most important antecedents and mediating variables for knowledge sharing. Among these, EPDM can be one of them that may arouse a sense of ownership on the part of employees, which can lead to altruistic spirit (Pierce, Kostova and Dirks 2001), thus contributing to organizational effectiveness, such as knowledge sharing (Strauss 2006).

Rapid advances of information technology in the 21st century have made intangible assets (e.g., ability and knowledge) more important than tangible assets (e.g., land and buildings) (Drucker 1993). High-tech organizations obviously focus on intangible assets (i.e., new ideas, new information and new knowledge) to produce a sequence of innovations, thus contributing to organizational performance (Anand, Gardner and Morris 2007; Puranam, Singh and Zollo 2006). In fact, intangible assets are embedded in organizational members, who representing that organizations may adopt some HR practices to induce employees to share important knowledge, in turn enhancing organizational competencies. Consequently, human capital has become a key strategic asset of organizations. However, human capital (e.g., strategic knowledge) is embedded in employees themselves; it is necessary for organizations to adopt some practices to make employees share tacit knowledge automatically. As argued by Anand et al. (2007), flexible mechanisms in high-tech organizations contribute to sharing and transferring of new information that leads to new knowledge, thus contributing to innovation. Therefore, organizations should design some proper artifacts (e.g., flexible organizational design) that realign employee interests with those of the organization and let organizations not only avoid agency problems (e.g., self-interest pursuits), but also make employees produce extra-role behaviour that enhances organizational performance.

Consistent with the philanthropic and justice principles of Confucianism, participation emphasizes involvement-HR systems and the sharing of power with employees, which can satisfy employees' humanistic needs, including personnel growth, extend the benefits of political democracy to their job and promote organizational efficiency (Heller, Pusic, Strauss and Wilpert 1998). Based on practical results, Warner (2009) argues that involvement-HR systems matched with organizational culture (philosophy of Confucianism) make organizations achieve the maximum organizational performance, implying that employees who participate in decision making are willing to share innovative knowledge contributing to organizational performance.

According to Vande Walle, Van Dyne and Kostova (1995), a sense of belonging influences altruistic spirit through organizational commitment and thus affects knowledge-sharing behaviour. Furthermore, Tannenbaum, Weschler and Massarik (1961) argued that employee participation in decision making could contribute to a sense of belonging. Thereby, psychological ownership and organizational commitment are conducive to knowledge-sharing behaviour on the part of employees. Therefore, an organization has to design a proper mechanism (i.e., EPDM) that enhances employees' psychological ownership and organizational commitment, thus stimulating knowledge sharing which is important to high-tech companies in dynamic environments. As mentioned above, this study aims to investigate the relationships among EPDM, psychological ownership, organizational commitment and knowledge sharing behaviour.

### **Literature and hypotheses**

In this section, this study explores the relationships among EPDM, psychological ownership, organizational commitment and knowledge-sharing behaviour. Hypotheses are proposed according to the propositions.

#### ***Employee participation in decision making and psychological ownership***

Though a lot of scholars have discussed the concept of EPDM, the basic theory and conceptions about EPDM are different. Based on the arguments of Tannenbaum et al. (1961), our chosen one describes the concept that employee have rights to participate in organizational decision making. Additionally, Tannenbaum and Cooke (1974) argued that EPDM manifests itself in the degree to which employees can affect decisions in their jobs. Furthermore, Likert (1967) argued that that EPDM is not a specific institution, but rather a collective management system, involving the processes of leading, motivation and interaction to provide employees with opportunities to participate in organizational decision making. Based on the definitions used in previous research, EPDM is a complicated concept that derives from management, psychology and sociology. This research aims to understand the results produced by the degree of EPDM; therefore, it is defined by our study as the degree by which employees participate in organizational decision-making through multiple approaches.

In fact, EPDM is one of the most effective tools for motivating employees to perform desirable behaviour (Coch and French 1948; Vroom 1964). Employees who participate in decision making may share organizational rights (Mitchell 1973). Therefore, all communication channels in the organization must be effective because it is important for managers to obtain suggestions from organizational members when making decisions (Newman, Summer and Kirby 1973). Greenberg (1975) argued that EPDM is the art of self-management learning, cooperation and responsibility, and that employees can express their talents through participation. According to McGregor (1986), it may make employees improve self-management and give them opportunity to express opinions when making organizational decisions. Furthermore, Masterson and Stamper (2003) argued employees' rights (such as political rights, where employees can participate in decision making regarding their own work) can strengthen the relational ties of employees within organizations. That is, those employees who have organizational rights (Graham 1991) (e.g., civil rights, politic rights and social rights) also have obligations or responsibilities back to the organization. Whenever employees participate in organizational decision-making, they will increase their working motivation and be more willing to increase their investment in the organization.

Etzioni (1991) argued that ownership is a dual creation; one is psychological attitude which exists in mind (i.e., psychological attitude), and the other is objective entity which exists in reality (i.e., objective entity). According to Pierce, O'Driscoll and Coghlan (2004), psychological ownership is significantly different from lawful possessions. That is, lawful possessions are recognized by society and the privileges of possessions are ensured and have legal protection. In contrast, psychological ownership is experienced by individuals via psychological feelings toward tangible and intangible objects which are closely associated with individuals. The objects of psychological ownership can exist at different levels in organizations, including organizations, groups, jobs, even mechanical equipment, as well as products created by individuals in the organization (Pierce et al. 2001). While lacking legal ownership, individuals may still develop a sense of psychological ownership through their psychological experiences of possessions (Rousseau and Shperling 2003), such as experiences of participating in decision making.

Participative decision making can satisfy needs of human growth (i.e., self-actualization and fulfillment), and through this mechanism increase employees' motivation contributing to positive attitudes (Wilkinson 1998). That is, the mechanism of EPDM which is consistent with the core of Confucianism that emphasizes thoughts of benevolence (*ren*) expressed in social relationships that make employees pursue mortal cultivation and do good for the organization (Ip 2009). With such an appropriate mechanism, an organization that designs various practices can motivate employees to automatically share tacit knowledge, indicating that the inducement and mechanism can be adopted by an organization to let employees produce psychological ownership by involving them in decision-making processes, and then induce employees to share tacit knowledge with their colleagues. Employees with psychological ownership have the feeling of 'It is MINE!' towards tangible and intangible objects (Pierce, Rubenfeld and Morgan 1991). Psychological ownership of employees promotes positive attitudes (e.g., responsibility, altruism) toward targets (e.g., organizations) in order to identify self-existing and self-meaning (Van Dyne and Pierce 2004). Employees who participate in organizational decision making think they are closely connected to organizational goals and feel they fairly have substantial discretion to handle their own job without supervision (Heller et al. 1998). Furthermore, participation is considered as a fundamental democratic right for employees to extend a degree of control over organizational decision making (Wilkinson, Gollan and Marchington 2010).

Therefore, employees who have control of the organization may experience ownership of the organization, thus producing psychological ownership through participating in managerial decision making, controlling the organization and the opportunities to invest themselves (Pierce et al. 2001). From empirical findings, the greater degree of employees' participation in decision making is associated with a higher degree of altruistic spirit that contributes to psychological ownership (Van Dyne and Pierce 2004; Cox, Zagelmeyer and Marchington 2006). Consequently, employees who have a say in decision making may develop a sense of psychological ownership that makes them feel that the organization is theirs (McGregor 1986). This sense of psychological ownership makes employees more willing to spend time and bear responsibility, thus enhancing organizational efficiency (Wilkinson 1998).

Therefore, hypothesis 1 is proposed.

*Hypothesis 1:* A positive relationship exists between employee participation in decision making and individuals' psychological ownership.

### ***Psychological ownership and organizational commitment***

According to the concept and theory of psychological ownership proposed by Pierce et al. (2001), psychological ownership is defined as individual feelings toward things which are substantial or non-substantial. That is, psychological ownership describes the feeling of possession connecting to psychological sense. A psychological feeling of possession makes individuals regard tangible or intangible targets as an extension of themselves (Belk 1988; Dittmar 1992). Furthermore, Pierce et al. (2004) argued that lawful ownership is the privilege of possessions that are ensured and possession rights that have legal protection; however, psychological ownership is committed by individuals who sense this feeling and comparative privileges recognized by individuals. Therefore, employees with psychological ownership may produce positive attitudes and stronger organizational commitment.

Organizational commitment is an attitude through which employees identify organizational goals and invest themselves in the organization for the sake of staying in the organization (Mowday, Steers and Porter 1979). Employees may develop organizational commitment on the basis of being positively attracted by the sense of belonging to the organization (Meyer and Allen 1997). Based on the argument of Pierce et al. (2001), organizational commitment differs from psychological ownership. Organizational commitment focuses on willingness of employees to stay in the organization and become organizational members. Meanwhile, psychological ownership emphasizes employee in ownership of organizations. Additionally, Porteous (1976) asserted that possessions toward objects can make people have sense of belonging, that is, psychological ownership may satisfy the need of individuals for belonging. Consequently, when employees' sense of belonging is stronger, employees have increased willingness to remain in the organization, and employees with a stronger sense of belonging are more committed to their organizations.

Based on the argument of Masterson and Stamper (2003), organizational identity, psychological ownership and perceived insider status are all dimensions that lead to a sense of belonging. McMillan and Chavis (1986) argue that a sense of belonging is a type of personal perception of being a member of an organization. When employees regard themselves as important members of an organization, they increase their participation and effort. Within an organization, members distinguish themselves from outsiders by boundaries that include language, clothing, habits and so on (McMillan and Chavis 1986). These boundaries make organizational members develop individual space and share feelings or demands to regard themselves as organizational insiders. Additionally, those employees who identify with an organization may have a high degree of organizational commitment. According to perspectives of Masterson and Stamper (2003), organizational identity and psychological ownership may be highly correlated. Furthermore, when the belief of being the owner of the organization is strong, employees will develop strong affective attachment to the organization (Pierce et al. 2001). Prior research provided empirical evidence to support this argument (Van Dyne and Pierce 2004; Mayhew, Ashkanasy, Bramble and Gardner 2007).

Therefore, hypothesis 2 is proposed.

*Hypothesis 2:* A positive relationship exists between psychological ownership and organizational commitment.

### ***Psychological ownership, organizational commitment and knowledge sharing***

Employees' knowledge-sharing behaviour contributes to the creation and utilization of knowledge; therefore, it plays an important role in knowledge management. When an organization adopts appropriate mechanisms for facilitating knowledge sharing, these



practices may create massive growth of knowledge. Particularly, tacit knowledge is the most important organizational resource (Grant 1997; Tidd 2000), and can become a primary source of competitive advantage owing to being difficult to imitate. As argued by Anand et al. (2007), high-tech organizations have to carefully negotiate with internal power relations in order to ensure that tacit knowledge is shared and produces innovation. High-tech organizations, which need new ideas, information, and knowledge, particularly need to handle the ambiguous nature of knowledge, such as people and organizational designs. Based on prior research, knowledge sharing can facilitate organizational innovation (Darroch and Mcnaughton 2002), core capability (Gold et al. 2001), and competitive advantage (Day 1994; Grant 1996; Teece 1998).

An organization can adopt mechanisms (e.g., EPDM) to encourage employees to be committed to organizational goals, thus producing mutual benefits for both employers and employees, in increasing organizational efficiency that is enhanced by critical knowledge sharing in the workplace (Wilkinson 1998; Bowen and Lawler 1992). Previous research has identified organizational commitment as one of the major antecedents of organizational citizenship behaviour, within which altruism is one important element (LePine, Erez and Johnson 2002; Organ and Ryan 1995), revealing that organizational commitment is an important antecedent for enhancing employee altruistic spirit. To investigate the antecedents of these attitudes, Van Dyne and Pierce (2004) identified that the psychological ownership is positively related to organizational commitment, which can evoke altruistic spirit, contributing to extra-role behaviour (e.g., knowledge-sharing behaviour) (Podsakoff, MacKenzie, Paine and Bachrach 2000). As mentioned above, employees who have a sense of psychological ownership may display altruistic spirit (Van Dyne and Pierce 2004), which has been viewed as one of the crucial antecedents for knowledge sharing behaviour.

Therefore, Hypothesis 3 is proposed.

*Hypothesis 3:* A positive relationship exists between psychological ownership and individuals' knowledge-sharing behaviour.

When employees perceive organizational support and care, they exhibit affective commitment toward the organization (Allen, Shore and Griffeth 2003). Furthermore, employees' perceiving organizational support have increased loyalty (Allen et al. 2003), and better job performance (Eisenberger, Fasolo and Davis-LaMastro 1990). Moreover, employees who perceive organizational support may generate affective attachments to the organization and be willing to be members of the organization (Meyer and Allen 1991), resulting in positive organizational performance. Therefore, this study identifies a positive association between perceived organizational support and organizational commitment. According to Masterson and Stamper (2003), both perceived organizational support and psychological ownership are dimensions of perceived organizational membership. That is, employees who perceive organizational membership may have a sense of organizational commitment and psychological ownership.

Employees with reciprocal responsibilities may have an altruistic spirit and perform organizational citizenship behaviour (Masterson and Stamper 2003). Previous researches have identified organizational commitment as an antecedent of organizational citizenship behaviour (LePine et al. 2002; Organ and Ryan 1995). Employees with high job satisfaction and organizational commitment can produce altruistic spirit, thus contributing to positive behaviour, such as knowledge sharing (Podsakoff et al. 2000; Jones 2002). That is, organizational commitment is an important antecedent for enhancing employees' altruistic spirit, which is an important determinant of extra-role behaviour. Employees with high altruistic spirit are more willing to share knowledge.



Therefore, Hypothesis 4 is proposed.

*Hypothesis 4:* A positive relationship exists between organizational commitment and individual knowledge-sharing behaviour.

Controlling an object is a key characteristic of the phenomenon of psychological ownership. Pierce et al. (2001) proposed that the greater the amount of control employees have, the more the objects are experienced by employees as extensions of themselves. When employees experience objects as extensions of the self, they have a responsibility or obligation toward the objects. Employees who have organizational empowerment (a form of EPDM) feel they have a greater amount of control and then can be more committed to organizational goals (Wilkinson 1998). That is, employees with organizational commitment are allowed to share four organizational ingredients, which include information, reward, knowledge and power to make decisions (Bowen and Lawler 1992), all of which contribute to knowledge sharing and then enhance organizational performance. Based on Van Dyne and Pierce (2004), psychological ownership is positively associated with organizational commitment. According to prior research, employees with high organizational commitment can evoke the spirit of altruism (Podsakoff et al. 2000). Vande Walle et al. (1995) demonstrated that psychological ownership affects altruistic spirit through organizational commitment and then affects knowledge sharing behaviour. Hislop (2003) demonstrated that organizational commitment can predict employee knowledge sharing attitudes and behaviour. Consequently, psychological ownership can positively affect altruistic spirit through organizational commitment, and employees with a high spirit of altruism are more willing to share knowledge.

Therefore, Hypothesis 5 is proposed.

*Hypothesis 5:* Organizational commitment mediates the relationship between psychological ownership and knowledge-sharing behaviour.

Based on hypotheses proposed by this study, the research framework is represented in Figure 1.

## Methods

### *Sample and procedures*

This study used data collected in 2007 via a self-report questionnaire distributed to employees randomly selected from eight high-tech companies in Taiwan. The eight high-tech companies were selected randomly from the list of Taiwanese high-tech companies. Employees were from firms emphasizing innovation in their business strategies to ensure that the samples had similar environmental characteristics. Of the 600 questionnaires

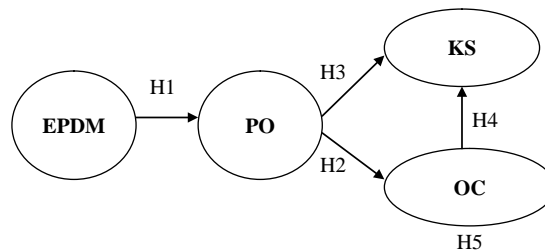


Figure 1. Research framework.

distributed, 260 questionnaires were returned and 239 were valid, which represented a response rate of 39.8%. Regarding the respondent characteristics: 52.4% were male and 47.6% were female; 62% had bachelor's degrees and 38% had a master's degree; 83% of participants had organizational tenures of less than 9 years. Structural equation modeling (SEM) was used to test the hypotheses, using the version of LISREL 8.52.

### **Measures**

Measurements relevant to this study and the source of references are described as follows. All questionnaire items were translated and refined by a panel of several experts who had majored in organizational behaviour to ensure the content validity of the measurements (Schwab 2005).

#### ***Knowledge sharing (KS)***

Knowledge sharing refers to the extent that organizational members share strategic knowledge with their co-workers (Bartol and Srivastava 2002; Becerra-Fernandez and Sabherwal 2001; Soliman and Youssef 2001). A three-item scale, based on Bartol and Srivastava (2002) and Becerra-Fernandez and Sabherwal (2001), was used to measure individual knowledge sharing behaviour. Measurement items included, 'I usually share work-related know-how and information with my colleagues orally or via the Internet', 'I usually automatically share my work-related creativity with my colleagues', and 'I usually help my colleagues solve work-related problems'. A five-point Likert scale was used to assess the items (1 = strongly disagree, 5 = strongly agree). The Cronbach's  $\alpha$  for the scale was 0.88.

#### ***Employee participation in decision making (EPDM)***

EPDM indicates that employees can participate in organizational decision-making through a direct or an indirect approach (Mitchell 1973; Tannenbaum and Cooke 1974). This variable was measured with a four-item scale adapted from Locke and Schweiger (1979). Measurement items included, 'I have a say in selection and training decisions', 'I can participate in strategy making of organizational administration', 'I can participate in measurement of organizational performance and compensation', and 'I can participate in decision making in work processes'. A five-point Likert scale was used to assess these items (1 = strongly disagree, 5 = strongly agree). The Cronbach's  $\alpha$  for this scale was 0.74.

#### ***Psychological ownership (PO)***

Psychological ownership represents not only the possession beliefs (Pierce et al. 1991, 2001), but also responsibility towards the organization. Employees with psychological ownership tend to perform positive behaviour (Van Dyne and Pierce 2004). PO was measured using a three-item scale adapted from Pierce et al. (2001) and Van Dyne and Pierce (2004). Measurement items included, 'I feel this company is MINE', 'I feel closely involved in the success or failure of the company', and 'I am willing to treat my company as my home'. A five-point Likert scale was used for item assessment (1 = strongly disagree, 5 = strongly agree). The Cronbach's  $\alpha$  for this scale was 0.78.

#### ***Organizational commitment (OC)***

Organizational commitment describes an employee's affective commitment towards an organization. A three-item scale adapted from Mowday et al. (1979) was

used to measure organizational commitment. Measurement items included, 'I am proud of being a member of this company', 'I am highly concerned with the future of my company', and 'I usually tell my friends that my company is an ideal place to work'. A five-point Likert scale was used to assess these items (1 = strongly disagree, 5 = strongly agree). The Cronbach's  $\alpha$  for this scale was 0.74.

## Results

### *Statistic fit and stability*

This study employed confirmative factor analysis to examine the stability and validity of several constructs, including employee participation in decision making, psychological ownership, organizational commitment and knowledge sharing behaviour. Hair, Black, Babin, Anderson and Tatham (2006) argued that fit statistics of  $\chi^2/D.F. < 5$ , GFI  $> 0.9$ , CFI  $> 0.9$ , AGFI  $> 0.8$ , RMSR  $< 0.05$  represented an adequate fit. The fit statistics of the measurement model are as follows:  $\chi^2 = 117.67$ , D.F. = 59,  $\chi^2/D.F. = 1.99$ ,  $P < 0.01$ , GFI = 0.93, AGFI = 0.89, RMSR = 0.049, CFI = 0.93, which revealed adequate model fit. Furthermore, the reliability range is from 0.74 to 0.88, indicating good stability.

### *Construct validity*

To attenuate the errors associated with common method variance caused by using simultaneous data in analyses (Podsakoff, MacKenzie, Lee and Podsakoff 2003), this study further examined model validity. First, all individual-level items were concluded to one general factor, and the analytical results for fitness included:  $\chi^2 = 518.79$ ; D.F. = 65; CFI = 0.79; GFI = 0.75; NNFI = 0.75, suggesting that the fitness of the one-factor model was poor. Second, all items were measured according to the proposed model; the analytical results for fitness were:  $\chi^2 = 117.67$ ; D.F. = 59; CFI = 0.97; GFI = 0.93; NNFI = 0.96, indicating that the fitness of the four-factor model was sufficient and the problem of common method variance was solved.

Furthermore, this study utilized the matrix  $\Phi$  to understand the extent to which a construct is truly distinct from other constructs. Based on the perspectives of Jöreskog and Sörbom (1981), they proposed that two conceptually similar concepts were distinct if  $\Phi \pm 1.96$  standardized error excluded 1. Results in Table 1 showed that the discriminate validity existed among constructs. Additionally, convergent validity is to understand the degree to which measures of the same concept are correlated. According to standardized  $\lambda$  and T value showed in Table 2, each T value of latent variables reached the significant level which represented every construct had convergent validity.

### *Means, standard deviations, and correlations*

Table 3 lists the means, standard deviations and correlations. The means from high to low are knowledge sharing, organizational commitment, employee participation in decision making and psychological ownership. Additionally, the relationships of four variables are inter-correlated positively and significantly ( $r = 0.194 - 0.471$ , all  $p < 0.05$ ), revealing that their inter-relationships require further exploration.

### *Structural model*

This study used a structural equation model to test the hypotheses. Overall, the structural model provided an adequate fit to the data ( $\chi^2 = 170.67$ , D.F. = 62, AGFI = 0.92,

Table 1.  $\Phi$ , standard deviation and  $T$  value.

<i>Constructs</i>	<i>Knowledge sharing</i>	<i>Organizational commitment</i>	<i>Psychological ownership</i>	<i>Employee participation in decision making</i>
<i>Knowledge sharing</i>	0.49 <sup>a</sup> (0.09) <sup>b</sup> 5.43 <sup>c</sup>			
<i>Organizational commitment</i>	0.24 (0.05) 4.63	0.66 (0.10) 6.80		
<i>Psychological ownership</i>	0.12 (0.05) 2.37	0.33 (0.06) 5.34	0.77 (0.11) 6.99	
<i>Employee participation in decision making</i>	0.31 (0.06) 5.65	0.33 (0.06) 5.71	0.32 (0.06) 5.40	0.62 (0.09) 6.95

Notes: <sup>a</sup> $\Phi$ ; <sup>b</sup>Standard error; <sup>c</sup> $T$  value.

RMSEA = 0.08, CFI = 0.94, IFI = 0.94). As shown in Figure 2, EPDM is positively related to psychological ownership ( $\beta = 0.51, p < 0.01$ ), thus supporting Hypothesis 1. Consistent with Hypothesis 1, psychological ownership is positively associated with organizational commitment ( $\beta = 0.51, p < 0.01$ ), thereby supporting Hypothesis 2. Hypothesis 3 predicts that psychological ownership is positively related to individual knowledge-sharing behaviour. However, the path coefficient is not statistically significant ( $\beta = 0.05, p > 0.1$ ), thereby Hypothesis 3 is not supported. That is, psychological ownership can not significantly affect individual knowledge sharing. Hypothesis 4 predicts that organizational commitment is positively associated with individual knowledge-sharing behaviour. The path coefficient is statistically significant ( $\beta = 0.41, p < 0.01$ ), thereby Hypothesis 4 is supported.

### **Examination of mediating effect**

In order to investigate the mediating effect of organizational commitment, this study conducted a competing model except for examining direct and indirect model of structural model. Path coefficients of the structural and competing models are represented in Table 4,

Table 2. Standardized  $\lambda$  and  $T$  value.

<i>Constructs</i>	<i>Indicators</i>	<i>Standardized <math>\lambda</math></i>	<i>T</i>
<i>Knowledge sharing</i>	Y4	0.70	NA
	Y5	0.85	9.15
	Y6	0.58	7.69
<i>Psychological ownership</i>	Y1	0.88	NA
	Y2	0.77	9.86
	Y3	0.46	6.61
<i>Employee participation in decision making</i>	X1	0.79	NA
	X2	0.75	11.81
	X3	0.81	12.97
	X4	0.81	12.93
<i>Organizational commitment</i>	Y7	0.81	NA
	Y8	0.56	8.29
	Y9	0.87	11.71

Table 3. Descriptive statistics and Pearson's correlations.

Constructs	Means	S.D.	1	2	3	4
1 Knowledge sharing	3.7021	0.7474	1.0			
2 Psychological ownership	2.5909	0.8229	0.194**	1.0		
3 Employee participation in decision making	3.0321	0.8241	0.438***	0.351***	1.0	
4 Organizational commitment	3.3037	0.7902	0.318***	0.452***	0.471***	1.0

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

EPDM → PO, PO → OC and OC → KS are all significant; however, PO → OC is not significant. Based on the results, organizational commitment may mediate the relationship between psychological ownership and knowledge sharing. Furthermore, we provided information of the direct and indirect effect of the structure model. In Table 5, the causal relationships of EPDM → PO, PO → OC and OC → KS only exist in the direct effect. However, in the causal relationship of PO → KS a significant indirect effect exists, that is, the mediating effect of organizational commitment is approved, and therefore hypothesis 5 is supported.

**Implications and suggestions**

The findings of this study have practical implications for organizations. Based on the results of Hypotheses 1–5, a positive relationship exists between employee participation in decision making and psychological ownership, and organizational commitment mediates the relationship between psychological ownership and knowledge sharing, indicating companies should allow employees to participate in decision making to make employees produce psychological ownership and organizational commitment, thus contributing to organizational benefit from knowledge sharing in the workplace. *Vis-à-vis* the arguments of Warner (2009), this study concludes that EPDM can be regarded as compatible with Confucian HRM, which emphasizes the philanthropic principles of

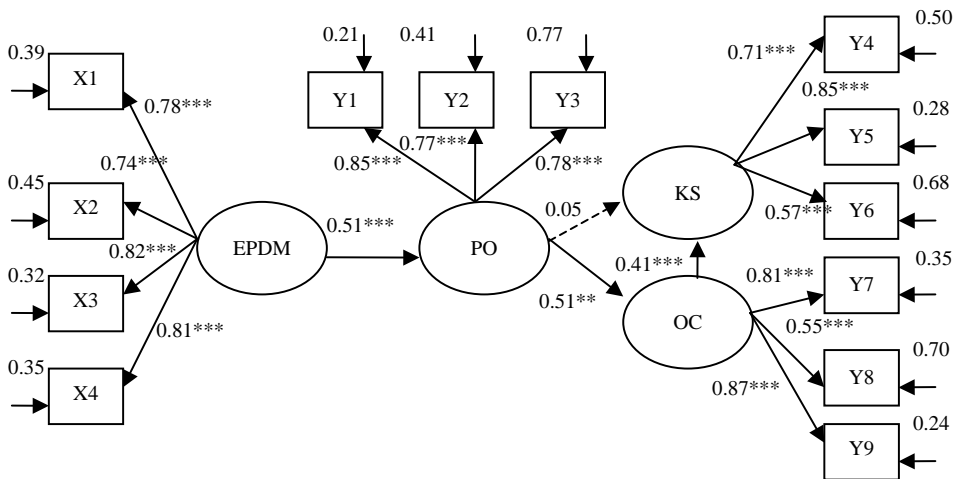


Figure 2. Structural model. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

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Table 4. Structural and competing models.

<i>Independent</i> → <i>dependent</i>	<i>Models</i>	
	<i>Structural model</i>	<i>Competing model</i>
EPDM → PO ( $\gamma$ )	0.51***	0.56***
PO → OC( $\beta$ )	0.51***	0.48***
OC → KS( $\beta$ )	0.41***	0.41***
PO → KS( $\beta$ )	0.05	—

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

Confucianism and the sharing of power with employees, satisfies employees' humanistic needs, thus encouraging employees to produce positive cognitions, attitudes and behaviour.

As for high-tech organizations, innovation in high-tech organizations needs continuous exploration and continuous exploitation in order to clearly understand demands of markets and bring each innovation to markets (Puranam et al. 2006; Zahra and Nielsen 2002). EPDM can be adopted by high-tech organizations to make employees produce psychological ownership and organizational commitment, thus sharing tacit knowledge contributing to innovation. Furthermore, the mediating role of organizational commitment reveals that employees who experience organizational empowerment (a form of EPDM) can produce the spirit of altruism through organizational commitment, thus contributing to knowledge-sharing behaviour.

Nowadays, important knowledge which can enhance organizational performance is embedded in frontline employees because they frequently interact with multiple stakeholders in daily operations. Consistent with the argument of Bowen and Lawler (1992), frontline employees who participate in decision making have a high willingness to share new idea, new information and new knowledge, all of which are helpful in the innovation process of high-tech organizations.

### Limitations and future research

This study has to be considered in light of its limitations. First, this study collected from a single source, which raises the concern of common method bias. Based on the arguments of Podsakoff et al. (2003), one way of controlling common method variance is to collect measures of variables from different sources. Therefore, future studies may collect data from different informants to solve the problem of common method biases. Second, the model used in this study was unable to eliminate the biases caused by simultaneous data and therefore, future studies can adopt a longitudinal design using different time stages to

Table 5. Direct and indirect effects in structural model.

<i>Independent</i> → <i>dependent</i>	<i>Effects</i>		
	<i>Direct effect</i>	<i>Indirect effect</i>	<i>Total effect</i>
EPDM → PO ( $\gamma$ )	0.51***	—	0.51***
PO → OC( $\beta$ )	0.51***	—	0.51***
OC → KS( $\beta$ )	0.41***	—	0.41***
PO → KS( $\beta$ )	0.05	0.13***	0.18***

Notes: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .



collect data in order to eliminate this bias (Podsakoff et al. 2003). According to Van Dyne and Pierce (2004), positive relationships exist among constructs which are sense of belonging, organizational commitment and satisfaction. Therefore, future studies can propose that sense of belonging (e.g., perceived insider status, psychological ownership) affects employee loyalty, and turnover intention. Furthermore, to discuss the relationships among person and organization fit (POF), perceived organization support (POS) and sense of belonging is another research direction.

## Conclusions

This study introduced a model explaining the relationship between employee participation in decision making and knowledge sharing behaviour, including testing of the mediating role of organizational commitment. This study demonstrates that employee participation in decision making is positively and significantly related to employee psychological ownership which is important to arouse positive employee attitudes and behaviour, which is consistent with arguments of scholars (Pierce et al. 2001; Cox et al. 2006). A positive relationship between employee psychological ownership and organizational commitment is proved by this study, which is consistent with the empirical findings of Van Dyne and Pierce (2004). Furthermore, the results also show that employees with a higher sense of psychological ownership are more committed to the organization. Additionally, the relationship between organizational commitment and knowledge-sharing behaviour is positive and significant; however, the relationship between psychological ownership and knowledge-sharing behaviour is positive but not significant, revealing that employees who have both psychological ownership and organizational commitment are more willing to share their knowledge with colleagues, which is consistent with the findings of Vande Walle et al. (1995). Consequently, EPDM may be regarded as an important mechanism to make employees produce psychological ownership and organizational commitment, thus contributing to knowledge-sharing behaviour.

In conclusion, organizations should adopt practices of EPDM, which is compatible with the philosophy of Confucianism as it is concerned with employees' humanistic needs, achievements and interests, contributing to employees' psychological ownership, organizational commitment and knowledge-sharing behaviour.

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