

The impact of employee intrinsic and extrinsic motivation on attitude toward and use of the innovation: The moderation role of manager persuasive strategy and assertive strategy

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ABSTRACT

Successful innovation implementation is key for organizations to benefit from the adopted innovation. We examine the impact of both employee intrinsic and extrinsic motivation on employee attitude and use of the innovation, with both manager persuasive and assertive strategies as moderators. The sample consisted of 34 teams and 234 employees from a Taiwanese manufacturing company which implemented an e-learning system. For employee attitude, employee intrinsic motivation and manager persuasive strategy were positively associated while manager assertive strategy was negatively associated. For employee behavior, employee extrinsic motivation and manager assertive strategy were positively associated. Manager persuasive strategy negatively moderated the relationship between employee intrinsic motivation and employee behavior. Manager assertive strategy positively moderated the relationship between employee intrinsic motivation and employee behavior and negatively moderated the relationship between employee extrinsic motivation and employee behavior. Implications of managers using both persuasive and assertive strategy to motivate employees are discussed.

Key words: intrinsic motivation; extrinsic motivation; persuasive strategy; assertive strategy; innovation implementation

Introduction

Innovation is an important tool for organizational revitalization, development, and competitiveness (Chen, Farh, Campbell-Bush, Wu, & Wu, 2013; Choi & Chang, 2009; Choi, Sung, Lee, & Cho, 2011; Klein, Conn, & Sorra, J. 2001; Real & Poole, 2005). However, many attempts at innovation adoption do not lead to the expected benefits due to implementation failure rather than innovation failure (Choi, 2011; Klein et al., 2001). A common reason is that companies usually overlook that successful implementation often requires users or employees to accept and continuously use the innovation (Chung & Choi, 2016; Damanpour, Chiu, & Magelssen, 2012; Jasperson, Carter, & Zmud, 2005; Klein et al., 2001; Klein & Sorra, 1996; Klein & Ralls, 1995; Real & Poole, 2005).

Several factors can impact implementation. Innovation scholars focus on the organizational factors, such as implementation policies and practices (Klein et al., 2001), or institutional enablers (Choi & Chang, 2009) as factors encouraging users' positive attitude and continuous use of an innovation. At the individual level, both the diffusion of innovations and the technology acceptance models posit that users' perceptions of innovations are critical for their intention to use an innovation or a technology (Choi, 2004; Davis, Bagozzi, & Warshaw, 1992; Jasperson et al., 2005; Rogers, 2003; Venkatesh, 1999; Venkatesh, Morris, Davis, & Davis, 2003). However, there is limited research on how users' characteristics affect their attitude and continuous use of an innovation. Therefore, the first goal in this study is to fill this gap by examining the role of employee motivation in the innovation implementation phase.

Motivation is a psychological attribute for understanding why people behave in one way rather than another (Nahavandi, Denhardt, Denhardt, & Aristigueta, 2015). Work motivation theories suggest that an individual's motivation is determined by individual characteristics, such

as needs, traits, and values (Latham & Pinder, 2005; Steers, Mowday, & Shapiro, 2004), context, such as culture and job design characteristics (Latham & Pinder, 2005; Steers et al., 2004), and an individual's cognitive evaluation, such as person–context fit, expectation of the result, and self-efficacy (Latham & Pinder, 2005; Steers et al., 2004). Motivation can further be differentiated between intrinsic motivation and extrinsic motivation (Gagne & Deci, 2005; Ryan& Deci, 2000). Individuals who are high in intrinsic motivation seek intrinsic rewards such as a feeling of achievement. Individuals who are high in extrinsic motivation seek extrinsic rewards such as a promotion. Intrinsic motivation and extrinsic motivation are not mutually exclusive and should always be measured as two independent constructs rather than as a single construct (Gagne & Deci, 2005; Loscocco, 1989). Motivation is relevant to innovation implementation because an employee's motivation indicates the priorities that the employee pursues at work (Loscocco, 1989) which might result in different outcomes for innovation implementation.

Furthermore, context matters, and individuals are expected to be influenced by their environment. Yet, there is limited innovation literature that examines the interaction of the context and individual differences (Choi, 2004; Jasperson et al., 2005). Employee motivation is expected to affect how they react to an innovation in the implementation phase. Based on self-determination theory, an individual has three basic psychological needs: autonomy, competence, and relatedness (Aryee, Walumbwa, Mondejar, & Chu, 2015; Gagne & Deci, 2005; Haivas, Hofmans, & Pepermans, 2013; Ryan& Deci, 2000), and different social and environmental factors can either strengthen or weaken those needs, which further change intrinsic motivation (Gagne & Deci, 2005; Ryan& Deci, 2000). Therefore, the second goal in this study is to fill this

gap by examining how managers' behaviors would strengthen or weaken the relationship between employee motivation and the result of the innovation implementation.

In implementing an innovation, managers can use several different approaches to persuade employees in the teams that they manage. The organization change literature suggests approaches such as communication, persuasion, participation, or coercion (Burke, 2014; Chin & Benne, 2009; Huy, Corley, Kraatz, 2014; Kotter & Schlesinger, 1979; Nutt, 1986). In addition, leadership scholars show that managers with charismatic or transformational leadership styles encourage employees' commitment to organizational change (Battilana, Gilmartin, Sengul, Pache, & Alexander, 2010; Herold, Fedor, Caldwell, & Liu, 2008). Regardless of which perspective, an effective leader such as a manager must be able to influence others to attain a desired goal, whether these individuals are subordinates, peers, or supervisors (Yukl, 2010). Thus, managers' influence behaviors are the subject of interest in the current study. These influence behaviors are termed influence strategies which are meta categories of various influence tactics a manager uses to persuade others (Fu, Kennedy, et al., 2004; Fu, Peng, Kennedy, & Yukl, 2004). Previous cross-cultural research has identified 3 influence strategies: persuasive strategy, assertive strategy, and relationship-based strategy (Fu, Kennedy, et al., 2004; Fu, Peng, et al., 2004). Relationship-based strategy is excluded from this study because it is the least used strategy in an organizational setting (Fu, Peng, et al., 2004).

This study intends to make a few contributions. First, the current study contributes to the innovation literature by examining the impact of employee motivation on their attitude toward using an innovation as well as their actual use of an innovation. Self-determination theory is used to explore how both employee intrinsic and extrinsic motivation affect their attitude and behavior. To the best of our knowledge, there does not appear to be any similar study previously. Second,

the current study contributes to the influence strategy literature by examining managers' influence strategy at the team level. Previous research treats influence strategy as either an outcome or a predictor. In other words, scholars either identify factors affecting individuals choosing certain influence strategies over others, or the possible outcome of certain influence strategies. It is important to explore managers' influence strategies at the team level because managers usually set the context for the team they managed. Third, the current study contributes to the change management literature by examining the influence of middle managers in the implementation phase. Middle managers were the focus of the current study because they are employees but they are also part of the management level. In the innovation implementation context, it is usually the top managers who make the adoption decision but middle managers who carry out those policies. Because they are structurally closer to employees, how they persuade employees might affect how employees perceive the innovation which might affect the result of the implementation.

The focal innovation in this study is an e-learning system implemented in a Taiwanese electronics company. Based on the innovation literature, innovation is defined as a new product or process which is new to adopters, regardless for how long it has been available (Rogers, 2003). Even though an e-learning system is not a new idea, it was new to the company studied. Therefore, the e-learning system was regarded as an innovation in this study. The term "manager" refers to middle managers who are one level above line employees and two levels below chief executive officer (Huy, 2001, 2002; Huy et al., 2014). Both employee attitude and employee behavior are measured as outcomes of innovation implementation. Figure 1 is the proposed model in the current study.

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Theory and hypotheses

Intrinsic motivation

According to self-determination theory, intrinsic motivation is a form of autonomous motivation which refers to an individual's intention to perform a task for its own sake, rather than other apparent reinforcement (Davis et al., 1992; Gagne & Deci, 2005; Garaus, Furtmüller, & Güttel, 2016; Venkatesh et al., 2003). In other words, an individual might want to perform a certain task because it is interesting and satisfying (Amabile, Hill, Hennessey, & Tighe, 1994; Gagne & Deci, 2005; Pierro, Cicero, & Raven, 2008). In the work setting, an individual high in intrinsic motivation will prefer an interesting and challenging job (Loscocco, 1989). Previous research reported that individuals who are high in intrinsic motivation are more creative (Amabile, 1985; de Jesus, Rus, Lens, & Imaginário, 2013; Zhang & Bartol, 2010), put more effort in the task (Cerasoli, Nicklin, & Ford, 2014), and have better performance (Cerasoli & Ford, 2014; Cerasoli, et al., 2014).

Adopting an innovation could be challenging and exciting at the same time because an innovation was something new to adopters (Rogers, 2003). Previous research shows that intrinsic motivation is positively related to openness (Judge, Simon, Hurst, & Kelley, 2014) which refers to an individual's interest and acceptance of novelty (Robbins & Judge, 2015). In other words, an intrinsically motivated employee is more likely to have a positive attitude toward something new and novel. In addition, an intrinsically motivated individual tends to engage in deep learning behavior (Cerasoli & Ford, 2014; Simons, et al., 2004). Therefore, they will try to relate new experience with existing experiences and construct their personal meaning (Dyer & Hurd, 2016; Hoeksema, Van de Vliert, & Williams, 1997). They are also more likely to pursue task goals (Simons, Dewitte, & Lens, 2004). When employees pursue a task goal, they tend to focus on

building their competence and are more likely to take on challenging tasks, such as learning a new innovation, even though there might be mistakes involved (Simons, et al., 2004). Therefore, the following hypotheses are proposed:

H1a: Employee intrinsic motivation is positively related to employee attitude toward using the innovation.

H1a: Employee intrinsic motivation is positively related to employee behavior of using the innovation.

Extrinsic motivation

In self-determination theory, extrinsic motivation is a form of controlled motivation which refers to an individual's intention to perform a task that is triggered by an external outcome distinct from the outcome of the task (Davis et al. 1992; Gagne & Deci, 2005; Garaus, et al., 2016; Venkatesh et al., 2003). An individual might want to perform a certain task for reasons other than undertaking the task itself, such as rewards and recognition (Amabile et al., 1994; Gagne & Deci, 2005; Pierro et al., 2008). Thus, an individual high in extrinsic motivation might work for a stable life, a good salary, or good benefits (Loscocco, 1989).

When implementing an innovation, it is inevitable to learn something new, such as a new process or new practice, which might not be regarded as something exciting for an employee high in extrinsic motivation. Previous research shows that an extrinsically motivated individual tends to engage in surface learning behavior (Simons, et al., 2004). That implies that they might not be interested in the subject but will try to meet the minimum requirement (Dyer & Hurd, 2016; Hoeksema, et al., 1997). In addition, an extrinsically motivated individual is more likely to pursue ego goals. They tend to compare themselves with others which might lead them to avoid

the task because they do not want to look inferior (Simons, et al., 2004). Therefore, the following hypotheses are proposed:

H2a: Employee extrinsic motivation is positively related to employee attitude toward using the innovation.

H2b: Employee extrinsic motivation is positively related to employee behavior of using the innovation.

Persuasive strategy

Managers use persuasive strategy when facts and logical arguments are used to persuade employees why certain behaviors are preferred. In the innovation implementation context, managers can take several approaches, such as explaining how the innovation is congruent with employees' ideals and values (Chong, 2014; Chong, Muethel, Richards, Fu, Peng, Shang, & Caldas, 2013; Falbe & Yukl, 1992; Lian, & Tui, 2012; Yukl & Falbe, 1990; Yukl et al., 1995; Yukl et al., 1996; Yukl & Tracey, 1992) or explaining how the organization as a whole and employees personally can benefit from the innovation (Falbe & Yukl, 1992; Yukl et al., 2005; Yukl & Falbe, 1990; Yukl et al., 1995; Yukl et al., 1996; Yukl et al., 2008; Yukl & Tracey, 1992). Additionally, managers might also promise assistance, such as training sessions (Yukl et al., 2005; Yukl et al., 2008), or invite employees to provide feedback and participate (Chong, 2014; Chong, et al., 2013; Falbe & Yukl, 1992; Lian, & Tui, 2012; Yukl & Falbe, 1990; Yukl et al., 1995; Yukl et al., 1996; Yukl & Tracey, 1992). Previous research shows that employees are likely to commit to what the managers ask for if persuasive strategy is used (Chong, 2014; Chong, et al., 2013; Falbe & Yukl, 1992; Yukl et al., 2005; Yukl & Tracey, 1992).

The effectiveness of persuasive strategy lies in the assumption that if employees are given enough information and adequate assistance, they are more likely to accept managers'

requests, such as to use an innovation (Chin & Benne, 1985; Grohowski & Vogel, 1990; Sharma & Yetton, 2007). This is important for employees high in intrinsic motivation because it would decrease the perceived complexity of an innovation (Chiu & Fogel, 2017) which helps employees feel more competent about using the innovation. Furthermore, cognitive evaluation theory posits that feelings of competence and feelings of autonomy are important for intrinsic motivation. Factors facilitating both feelings of competence and autonomy are expected to increase intrinsic motivation (Gagne & Deci, 2005). Therefore, the following hypotheses are proposed:

H3a: Manager persuasive strategy moderates the relationship between employee intrinsic motivation and employee attitude toward using the innovation; employee intrinsic motivation is positively related with employee attitude when more persuasive strategy is observed.

H3b: Manager persuasive strategy moderates the relationship between employee intrinsic motivation and employee behavior of using the innovation; employee intrinsic motivation is positively related with employee behavior when more persuasive strategy is observed.

Employees with high extrinsic motivation are more likely to be motivated if external rewards are mentioned. When managers use persuasive strategy in the innovation implementation phase, one of the approaches is to focus on potential benefits the innovation brings to both the organization and individuals. Rational choice theory posits that individuals make decisions based on their evaluation of costs and benefits associated with that decision (Bulgurcu, Cavusoglu, & Benbasat, 2010). Therefore, it would be likely that employees with high extrinsic motivation would be motivated if any personal rewards or benefits are mentioned. Therefore, the following hypotheses are proposed:

H4a: Manager persuasive strategy moderates the relationship between employee extrinsic motivation and employee attitude toward using the innovation; employee extrinsic motivation is positively related with employee attitude when more persuasive strategy is observed.

H4b: Manager persuasive strategy moderates the relationship between employee extrinsic motivation and employee behavior of using the innovation; employee extrinsic motivation is positively related with employee behavior when more persuasive strategy is observed.

Assertive strategy

Assertive strategy approaches a manager can take include demanding and threatening employees, continuously checking up on them (Chong, 2014; Chong, et al., 2013; Falbe & Yukl, 1992; Lian, & Tui, 2012; Yukl & Falbe, 1990; Yukl et al., 1995; Yukl et al., 1996; Yukl & Tracey, 1992), or repeating the request over and over (Chong, 2014; Chong, et al., 2013; Fu, Kennedy et al., 2004; Fu, Peng et al., 2004). Sometimes, a manager might also refer to the organizational policies or rules as the basis (Falbe & Yukl, 1992; Lian, & Tui, 2012; Yukl & Falbe, 1990; Yukl et al., 1995; Yukl et al., 1996; Yukl & Tracey, 1992). Previous research shows that when managers use this approach there is usually employee compliance but sometimes employees will resist (Chong, 2014; Chong, et al., 2013; Fable & Yukl, 1992; Lian, & Tui, 2012; Fu, Yukl, Kennedy, Srinivas, Cheosakul, Peng, & Tata, 2001; Fu, Peng et al., 2004; Yukl & Tracey, 1992).

When an employee has high intrinsic motivation, the employee will react to things of interest to the employee. If a manager uses an assertive strategy, the request to use the innovation may no longer be regarded as something interesting but as an obligation for an employee with

high intrinsic motivation. Based on self-determination theory, one of the psychological needs for those with high intrinsic motivation is the need for autonomy (Gagne & Deci, 2005; Ryan& Deci, 2000). The perception of an obligation is expected to decrease the perception of autonomy and then decrease intrinsic motivation. In addition, an individual's intrinsic motivation is negatively associated with hard power, the use of coercion or referring legitimacy (Pierro et al., 2008). Thus, it is more likely that such an employee will think negatively about the innovation and refuse to use the innovation. Therefore, the following hypotheses are proposed:

H5a: Manager assertive strategy moderates the relationship between employee intrinsic motivation and employee attitude toward using the innovation; employee intrinsic motivation is negatively related with employee attitude when more assertive strategy occurs.

H5b: Manager assertive strategy moderates the relationship between employee intrinsic motivation and employee behavior of using the innovation; employee intrinsic motivation is negatively related with employee behavior when more assertive strategy occurs.

When an employee has high extrinsic motivation the employee is more likely to be persuaded by factors that make rewards or punishment more salient. If a manager uses assertive strategy, this will be an effective approach because the employee will understand clearly the benefits of using and the costs of not using the innovation. In addition, an individual's extrinsic motivation is positively associated with hard power, the use of coercion or referring legitimacy (Pierro et al., 2008). Therefore, the following hypotheses are proposed:

H6a: Manager assertive strategy moderates the relationship between employee extrinsic motivation and employee attitude toward using the innovation; employee extrinsic

motivation is positively related with employee attitude when more assertive strategy is observed.

H6b: Manager assertive strategy moderates the relationship between employee extrinsic motivation and employee behavior of using the innovation; employee extrinsic motivation is positively related with employee behavior when more assertive strategy is observed.

Method

Sample

The data were collected from one global manufacturing company headquartered in Taiwan from 2010 to 2011. The company implemented an e-learning system to manage internal knowledge. The e-learning system in this setting is regarded as an innovation because it was new to the company when it was adopted in 2007 (Choi & Chang, 2009; Choi et al., 2011; Rogers, 2003; Sawang, 2011). Even though the practice of using the e-learning system to conduct employee training is not new, it is the first time this company engaged in such an activity. The e-learning system is regarded as an innovation in the context studied. The company's purpose of adopting the e-learning system was twofold. First, it was used to manage internal knowledge. In the planning stage, each functional department decided which knowledge areas were important. Senior employees were then asked to develop course materials for these critical knowledge areas by also including experiences and challenges that occurred at this company. Second, placing these knowledge areas on the Internet provided flexibility for employees taking these classes.

The e-learning system was launched at the end of 2007. There were 269 courses available in 2008. There were nine more courses added in 2010 for a total number of 278 courses.

Employees were provided with suggestions of courses relevant to their job function. Employees could take almost every course except for a few that were specific to a particular job function.

All employees from one business unit were invited to participate in this study. All questions were originally in English and were translated into Chinese. The Chinese questions were then back translated into English to minimize any possible translation error. The employees were surveyed in Chinese. There were 416 employees who were contacted by e-mail inviting them to fill out an online survey and the number of valid responses was 248. The final sample was comprised of 234 employees and 34 teams as a team had to have at least two valid responses to be included.

For employees, 68.80% (n=161) were men. Educational categories were: 17.09% (n=40) had either a high school or associate degree, 56.84% (n=133) had an undergraduate degree, and 26.07% (n=61) had a graduate degree. For age categories: 26.92% (n=63) were below 31 years old, 41.88% (n=98) were 31-35 years old, 16.67% (n=39) were 36-40 years old, and 14.53% (n=34) were over 40 years old.

Measures

Dependent variables. There are two dependent variables in this study. Employee attitude toward using the innovation was measured by four items adopted from Bhattacharjee and Sanford (2006). Each item was measured on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). The total score was an average obtained of the total score divided by the number of questions. A sample item for this variable is, "Using the e-learning system in my job is a good idea." Cronbach alpha of this 4-item variable was 0.89. Employee behavior of use of the innovation was measured by the total number of courses they took from 2008 through 2010.

Intrinsic and extrinsic motivation. Both intrinsic and extrinsic motivations were measured by a three-item scale from a previous study (Loscocco, 1989). Each item was measured on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Each total score was an average obtained of the total score divided by the number of questions. A principal component analysis with oblimin rotation resulted in two distinct variables with loadings over the cut-off value of 0.40. A sample question for intrinsic motivation is, “The chance of doing a number of different things is important to me.” A sample item for extrinsic motivation is, “Good pay is important to me.” Cronbach alpha for intrinsic motivation and extrinsic motivation was respectively 0.87 and 0.90. As an interaction effect was hypothesized, both intrinsic motivation and extrinsic motivation were group-mean centered (Enders & Tofighi, 2007).

Influence strategy. Influence strategy was measured using items adopted from both the Influence Behavior Questionnaire (IBQ) (Yukl et al., 2005; Yukl et al., 1992; Yukl et al., 2008) and cross-cultural studies (Fu, Kennedy et al. 2004; Fu, Peng et al., 2004). Employees were asked to recall how likely their direct manager used the behavior indicated to promote the e-learning system on a 5-point Likert scale (1=definitely would not to 5=definitely would). There were 13 influence tactics included and each tactic was measured with 2 items. A principal component analysis with oblimin rotation resulted in three factors which is consistent with previous cross cultural studies (Fu, Kennedy *et al.*, 2004; Fu, Peng *et al.*, 2004). Persuasive strategy was comprised of ten items from five influence tactics each with two items consisting of: apprising, consultation, collaboration, inspirational appeals, and rational persuasion. A sample item is “Explain how the e-learning system could help your career.” Cronbach alpha for persuasive strategy was 0.94. Assertive strategy was comprised of five items from three influence tactics consisting of: persistence (one item), pressure (two items), and legitimating

(two items). A sample item is “Say that using the e-learning system is consistent with company rules and policies.” Cronbach alpha for assertive strategy was 0.74. The third factor of relationship-based strategy was not included in the analyses as it is the least used strategy in an organizational setting.

Manager influence strategy was treated as the team-level variable because it reflects a shared experience within the same team (Herold et al., 2008). Aggregation of individual team member’s rating of the manager’s influence strategy was used. Intra class correlations were obtained to verify the appropriateness of aggregation. For persuasive strategy, ICC 1=0.11, ICC 2=0.46. For assertive strategy, ICC 1=0.17 and ICC 2=0.59. Both influence strategy and assertive strategy were grand-mean centered (Enders & Tofighi, 2007).

Control variables. A few control variables were included in the study. To have sufficient number of employees in each age category, age was recoded into four categories: under 31, 31-35, 36-40, and over 40. To have sufficient number of participants in each education category, education was recoded into three categories: high school or associate degree, undergraduate degree, and graduate degree. Gender was categorized as men=0 and women=1. Tenure was calculated as the total number of years employees worked at the company.

Statistical Analyses

Continuous variables were reported with descriptive statistics of mean and standard deviation (SD). Pearson correlation was conducted for the normally distributed variables while Spearman rank correlation was conducted when at least one variable had a skewed distribution. Due to the nested nature of the dataset, a multilevel analysis was performed. A multilevel mixed-effects generalized linear model was used for the outcome of employee attitude toward using the innovation. A multilevel mixed-effects Poisson regression model was used for the outcome of

employee use of the innovation. Four models were used. Model 1 included the control variables. Model 2 included model 1 and the motivation variables. Model 3 included model 2 and the strategy variables. Model 4 included model 3 and the interaction variables. Figures were used to illustrate the presence of strategy as a statistically significant moderator. High strategy is measured as one SD above the mean and low strategy is measured as one SD below the mean. All p-values were two-tailed. Stata Version 14 was used for all analyses.

Results

Table 1 shows descriptive statistics and correlations for all continuous variables. Attitude had a positive correlation with intrinsic motivation and persuasive strategy and a negative correlation with assertive strategy. Number of courses employees took had a positive correlation with assertive strategy. Table 2 shows a series of multilevel mixed-effects generalized linear models to test the moderation impact on employee attitude toward using the e-learning system, and a series of multilevel mixed-effects Poisson regression models to test the moderation impact on number of courses employees took.

Model 1A shows that none of the control variables were statistically significantly associated with employee attitude. Model 1B shows that all age groups and employees with high school or associate degree were statistically significantly negatively associated with number of courses employees took. Model 2A shows that employee intrinsic motivation was statistically significantly positively associated with employee attitude. No statistically significant association was observed for extrinsic motivation. Therefore, hypothesis 1A was supported while hypothesis 2A was not supported. Model 2B retained the same statistically significant pattern for the control variables as in model 1B for number of courses employees took. Also, employee extrinsic motivation was statistically significantly positively associated with number of courses employees

took. No statistically significant association was observed for employee intrinsic motivation. Therefore, hypothesis 1B was not supported while hypothesis 2B was supported.

Model 3A retained the statistically significant positive association seen for employee intrinsic motivation as in model 2A for employee attitude. In addition, manager persuasive strategy was statistically significantly positively associated with employee attitude while manager assertive strategy was statistically significantly negatively associated with employee attitude. Model 3B retained the same statistically significant pattern for the control variables and employee extrinsic motivation as in model 2B for number of courses employees took. In addition, manager assertive strategy was statistically significantly positively associated with number of courses employees took. Model 4A retained the statistically significant associations seen for employee intrinsic motivation, manager persuasive strategy, and manager assertive strategy as in model 3A but did not show any statistically significant interactions for motivation and strategy for employee attitude. Therefore, hypotheses 3A, 4A, 5A, and 6A were not supported. Model 4B retained the same statistically significant pattern for the age categories, employee with high school or associate degree, and manager assertive strategy for number of courses employees took. Also, employee with college degree was statistically significantly negatively associated with number of courses employees took. However, employee extrinsic motivation was no longer statistically significantly associated with number of courses employees took. Therefore, hypotheses 3B, 4B, 5B, and 6B were not supported.

----- insert Table 1 around here-----

----- insert Table 2 around here-----

There were several statistically significant interactions in model 4B. Manager persuasive strategy negatively moderated the relationship between employee intrinsic motivation and

number of courses taken. Figure 2 shows that managers with high persuasive strategy encouraged fewer courses taken for employees with higher intrinsic motivation while managers with low persuasive strategy encouraged more courses taken for employees with higher intrinsic motivation. Another statistically significant interaction showed that manager assertive strategy positively moderated the relationship between employee intrinsic motivation and number of courses taken. Figure 3 shows that managers with high assertive strategy encouraged more courses taken for employees with higher intrinsic motivation while managers with low assertive strategy encouraged fewer courses taken for employees with lower intrinsic motivation. The last statistically significant interaction showed that manager assertive strategy negatively moderated the relationship between employee extrinsic motivation and number of courses taken. Figure 4 shows that managers with high assertive strategy encouraged more courses taken for employees with lower extrinsic motivation while managers with low assertive strategy encouraged fewer courses taken for employees with lower extrinsic motivation.

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Discussion

Organizations adopt innovation to be more effective and more competitive. However, the intended outcome will not be realized until the innovation is implemented properly, which requires employees to have a positive attitude and the proper use of the innovation. The results of a series of multilevel analyses showed that employee intrinsic motivation and manager persuasive strategy were positively associated with attitude toward using the e-learning system, while manager assertive strategy was negatively associated with attitude toward using the e-

learning system. In addition, employee extrinsic motivation, and manager assertive strategy were positively associated with number of courses taken, while all age categories, and at least one of the education categories were negatively associated with number of courses taken. Furthermore, manager persuasive strategy negatively moderated the relationship between intrinsic motivation and number of courses taken. Manager assertive strategy negatively moderated the relationship between extrinsic motivation and number of courses taken. Manager assertive strategy positively moderated the relationship between intrinsic motivation and number of courses taken.

Employee motivation

Employee intrinsic motivation was positively associated with employee attitude toward using the e-learning system, while employee intrinsic motivation was not significantly associated with number of courses employees took. One possible explanation for the lack of an association for intrinsic motivation and behavior might be related to the psychological needs of intrinsic motivation (Gagne & Deci, 2005; Ryan & Deci, 2000). Employees with high intrinsic motivation would conduct certain behaviors if they feel such activities enjoyable and interesting. Therefore, it is possible that they will be intrinsically motivated to engage in some activities but not other activities (Ryan & Deci, 2000). However, the work related tasks in an organizational setting are seldom regarded as fun and interesting (Cerasoli et al., 2014). In addition, even though a meta-analysis of many studies found a positive association between intrinsic motivation and general performance, the results also showed that intrinsic motivation is a better prediction for the performance quality than performance quantity (Cerasoli et al., 2014). The behavior measure used in the current study was the number of courses taken, a measure of quantity rather than quality, which might be another explanation for the lack of an association for intrinsic motivation and behavior.

Employee extrinsic motivation was positively associated with number of courses employees took in two of the three analytical models, while employee extrinsic motivation was not significantly associated with employee attitude toward using the e-learning system. It is possible that employees with high extrinsic motivation simply comply with the managers' request of using the innovation because compliance happens when employees engage in the desired behavior without enthusiasm (Yukl, 2010). It is not surprising that employees with high extrinsic motivation would comply because they will be motivated by potential rewards or to prevent potential punishment. Similarly, previous research has shown that employees with high extrinsic motivation performed better on uninteresting tasks (Garaus, et al., 2016). Therefore, employees with high extrinsic motivation do not need to have a positive attitude for them to engage in certain behaviors.

Manager influence strategy and moderation analysis

Manager persuasive strategy was positively associated with employee attitude but not significantly associated with number of courses employees took. With regard to the moderation analyses, manager persuasive strategy negatively moderated the relationship between employee intrinsic motivation and number of courses employees took, but no moderation was found between employee intrinsic motivation and employee attitude, as well as between employee extrinsic motivation and either employee attitude or number of courses employees took.

The moderation suggests that employees with higher intrinsic motivation took fewer courses when managers used more persuasive strategy. One explanation might be related to employees' perception of benefits or rewards that the e-learning system would offer. When a manager used persuasive strategy, it is likely that the manager mentioned benefits to individuals such as better performance evaluations and higher chances to advance in the organization. Self-

determination theory posits that rewards would have a negative impact on an individual's intrinsic motivation (Gagne & Deci, 2005; Ryan & Deci, 2000). It is possible that employees with high intrinsic motivation viewed the personal benefits as external rewards for them which might have had a negative impact on their behavior.

Manager assertive strategy was negatively associated with employee attitude but positively associated with number of courses employees took. With regard to the moderation analyses, manager assertive strategy positively moderated the relationship between employee intrinsic motivation and number of courses employees took while manager assertive strategy negatively moderated the relationship between employee extrinsic motivation and number of courses employees took. This suggests that employees with higher intrinsic motivation would take more courses when managers used more assertive strategy. On the other hand, employees with higher extrinsic motivation would take fewer courses when managers used more assertive strategy. With regard to employee attitude, no moderation was found for either employee intrinsic motivation or extrinsic motivation and employee attitude.

One explanation for the behavior findings might be due to the cultural context. The organization studied is in Taiwan which has a high power distance national culture. Employees in a high power distance culture are comfortable with receiving orders from seniors or managers (Hofstede, Hofstede, & Minkov, 2010). In addition, paternalistic leadership is common in Chinese cultures like Taiwan. Paternalistic leadership is characterized by three dimensions: authoritarianism (managers exert control and demand obedience from employees), benevolence (managers care about employees' well-being), and morality (managers serve as employees' model) (Chan, 2014; Chen, Eberly, Chiang, Farh, & Cheng, 2014). In such cultural context,

when a manager uses an assertive strategy, it may not be regarded as pressure but as something expected.

The focal innovation is an e-learning system and previous research has shown that learners need a sense of self-direction in the online context because they can decide their own pace and progress (Garaus, et al., 2016). For employees with high intrinsic motivation, when managers check on them, they might view such behavior as a friendly reminder. Therefore, they would be more likely to take more courses. On the contrary, employees with high extrinsic motivation care more about their salary and benefits than learning. Therefore, it is likely that they will try to meet only the minimum requirement to avoid any negative consequence. For employees with high extrinsic motivation, when managers check on them, they might view such behavior as something irritating, especially if they are not particularly interested in such activity. Therefore, they would be more likely to take fewer courses.

Limitation and future research

This study has some limitations. First, innovation implementation is not a one-off action but rather is a long process. A manager might have used various methods at different time periods as part of the manager's persuasive approach. Some influence behaviors are more likely to be used in the initial stage while some others are more likely to be used in the follow-up stage (Yukl et al., 1993). Asking employees to recall managers' behavior might create a recency problem where employees might only recall what happened recently and not what occurred in the initial stage. Future research can involve asking employees to record information in a print or electronic diary. Second, only the team-level variables of manager persuasive and assertive strategy were examined. Team members are usually both cooperative and competitive (Thompson, 2011) but the current study did not measure these dynamics. For example, when

managers mention the possibility for career advancement, they might create a sense of competition among team members which might also impact how team members work with each other and team performance. Future research should consider team dynamics and examine more team-level variables.

Conclusion

Despite its limitations, the current study has several contributions. The study extends the innovation literature by examining employees' intrinsic and extrinsic motivation for their attitude toward using the innovation and for their actual behavior of using the innovation. Furthermore, the study introduces manager influence strategy as a contextual variable and examines the moderation of manager influence strategy on the relationship between employee motivation and both attitude and use of the innovation. Third, the current study examines how middle managers could influence employees in the innovation implementation phase. In addition, there are some practical implications for managers. Managers will find that employees with higher intrinsic motivation have a more positive attitude toward using the innovation but the positive attitude might not turn in to a real action, while employees with higher extrinsic motivation are more likely to comply with the request to use the innovation. Therefore, managers might want to create a context that fosters employees' competence, autonomy, and relatedness to help them to transfer the positive attitude to behavior. Managers should also be aware of the cultural impact on using both persuasive strategy and assertive strategy to encourage employee use of an innovation.

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Table 1. Descriptive statistics and correlations

	Mean	SD.	1	2	3	4	5	6
Individual level variables								
1. Attitude	3.69	.63						
2. Course	22.30	24.18	.09					
3. Intrinsic motivation	4.21	.59	.33***	.03				
4. Extrinsic motivation	4.50	.59	.13	.07	.56***			
5. Tenure	4.60	5.33	-.01	-.02	-.13*	-.08		
Team level variables								
6. Persuasive strategy	3.83	.40	.34***	.01	.18**	.14*	-.02	
7. Assertive strategy	2.84	.44	-.19**	.19**	-.09	-.02	.15*	-.21

Note: N=234, SD=standard deviation

*p< .05 **p< .01; ***p< .001

All correlations are at individual-level data, except for employee aggregated assertive strategy and manager report assertive strategy. For these 2 variables, team means were assigned to individuals.

Table 2. Results of multilevel regression analysis

	Model 1A		Model 1B		Model 2A		Model 2B		Model 3A		Model 3B		Model 4A		Model 4B	
	DV= Attitude		DV= Course		DV= Attitude		DV= Course		DV= Attitude		DV= Course		DV= Attitude		DV= Course	
	Beta	(SE)	Beta	(SE)												
Constant	3.84***	.18	3.00***	.16	3.78***	.17	3.00***	.16	3.734***	.15	3.02***	.16	3.70***	.15	3.03***	.16
Age																
Under 31	Reference	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
31~35	.04	.10	-.34***	.04	.04	.09	-.35***	.04	.07	.09	-.35***	.04	.09	.09	-.37***	.04
36~40	-.09	.13	-.35***	.05	-.09	.12	-.35***	.05	-.09	.12	-.35***	.05	-.10	.12	-.38***	.05
Over 40	-.04	.17	-.57***	.07	-.05	.15	-.57***	.07	.07	.15	-.57***	.07	.04	.15	-.68***	.07
Education																
High school or associate	.07	.14	-.16***	.06	.16	.13	-.15*	.06	.14	.13	-.15*	.06	.13	.13	-.16**	.06
Undergraduate	-.06	.10	-.05	.04	-.03	.09	-.05	.04	-.01	.09	-.05	.04	-.02	.09	-.10*	.04
Graduate	Reference	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gender (woman)	-.09	.10	.07	.04	-.08	.10	.07	.04	-.07	.09	.06	.04	-.05	.09	.08	.04
Tenure	-.002	.01	.002	.004	.001	.01	.003	.00	.001	.01	.003	.004	.004	.01	.01	.004
Intrinsic motivation					.42***	.08	.01	.03	.42***	.08	.01	.03	.43***	.08	-.005	.03
Extrinsic motivation					-.10	.08	.08*	.03	-.11	.08	.08*	.03	-.09	.08	.06	.03
Persuasive strategy									.52***	.10	.01	.30	.51***	.10	.01	.30
Assertive strategy									-.20*	.10	.55*	.28	-.20*	.10	.57*	.28
INxPER													-.19	.17	-.39***	.07
INxASS													-.01	.21	.47***	.08
EXxPER													.24	.18	.09	.07
EXxASS													-.29	.19	-.36***	.08

Note 1: *p< .05 **p< .01; ***p< .001

Note 2: SE=standard error, INxPER= Intrinsic motivation* Persuasive strategy; INxASS= Intrinsic motivation* Assertive strategy; EXxPER= Extrinsic motivation* Persuasive strategy; EXxASS= Extrinsic motivation* Assertive strategy

Figure 1. Theoretical model of the current study

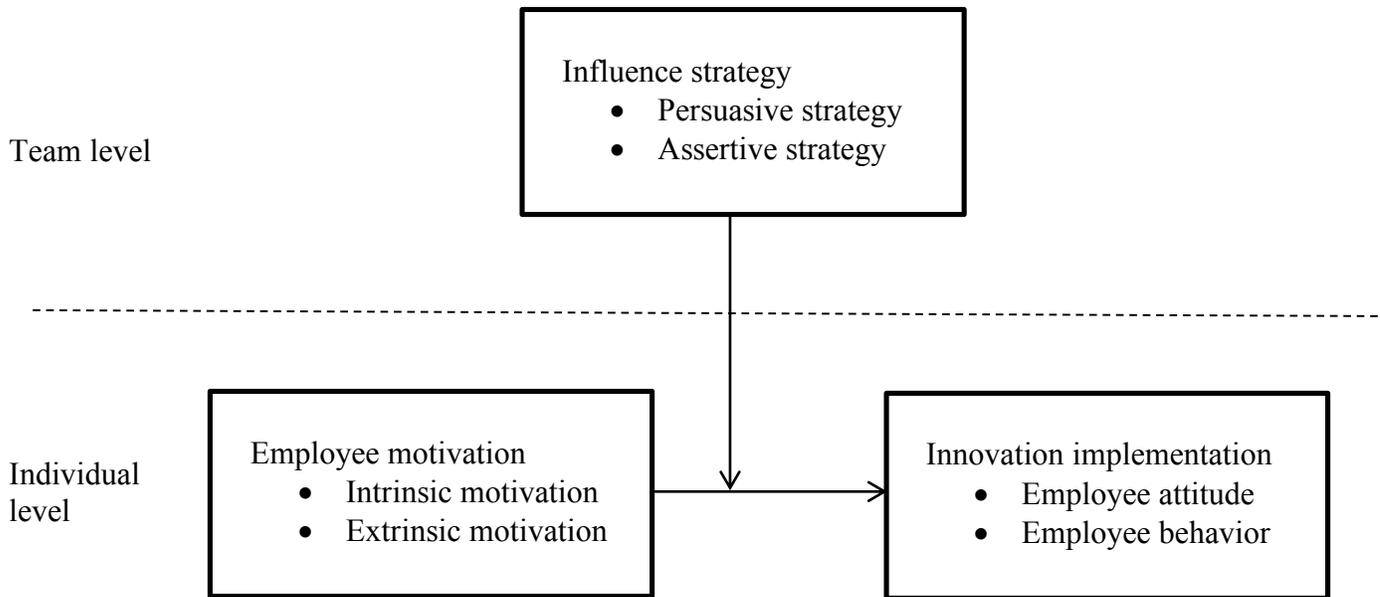
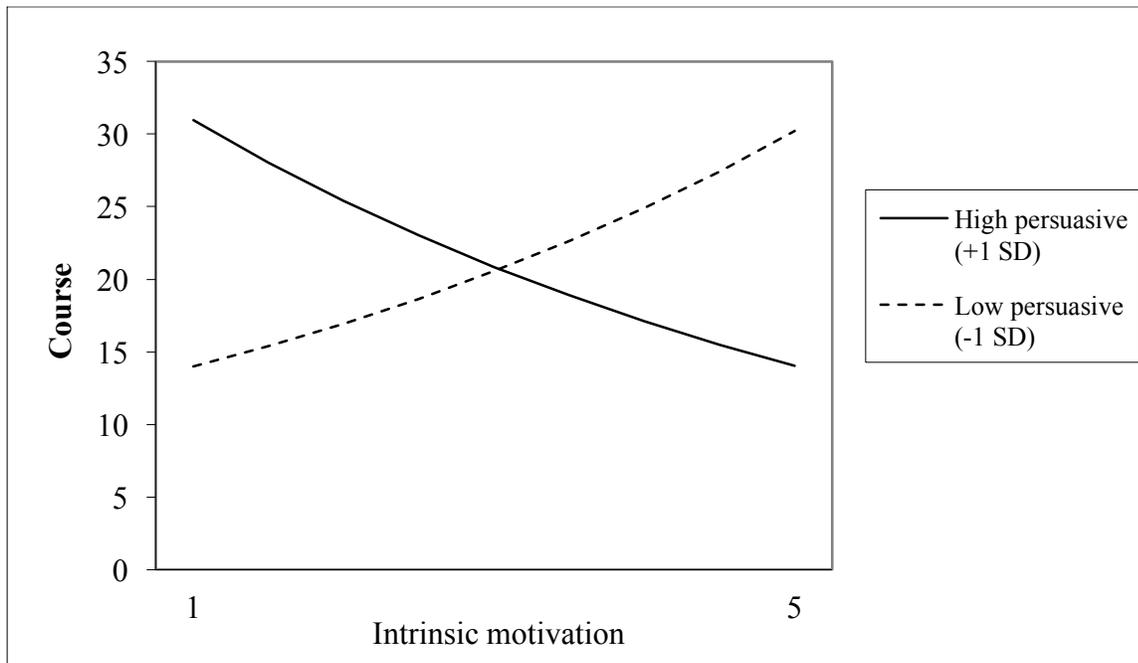
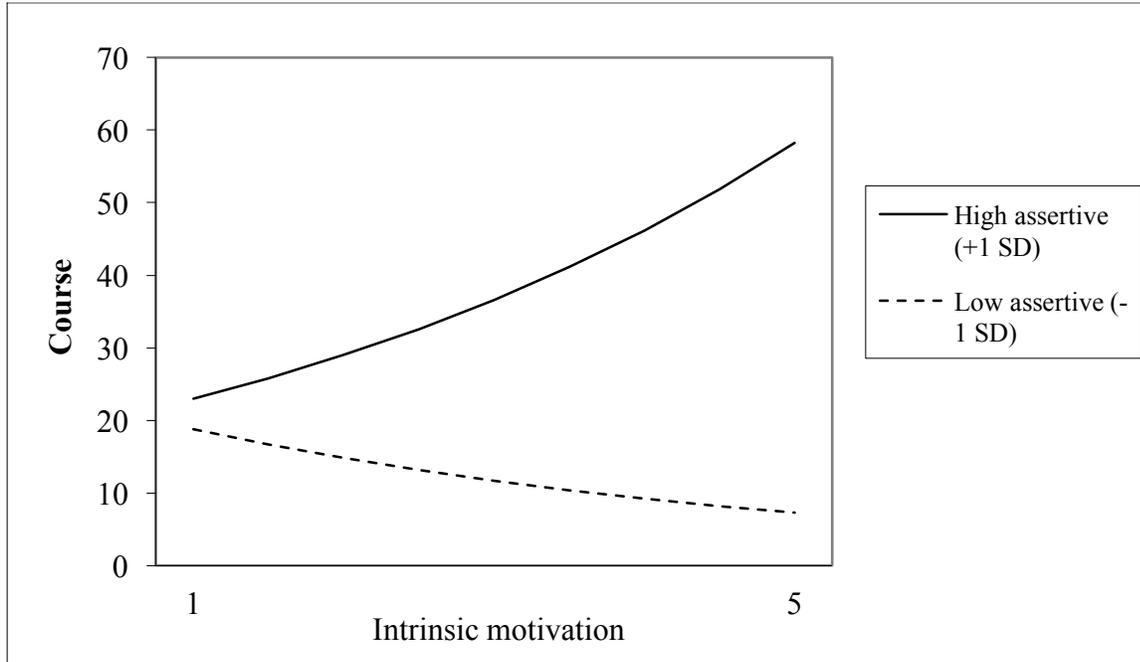


Figure 2. Interaction between manager persuasive strategy and employee intrinsic motivation



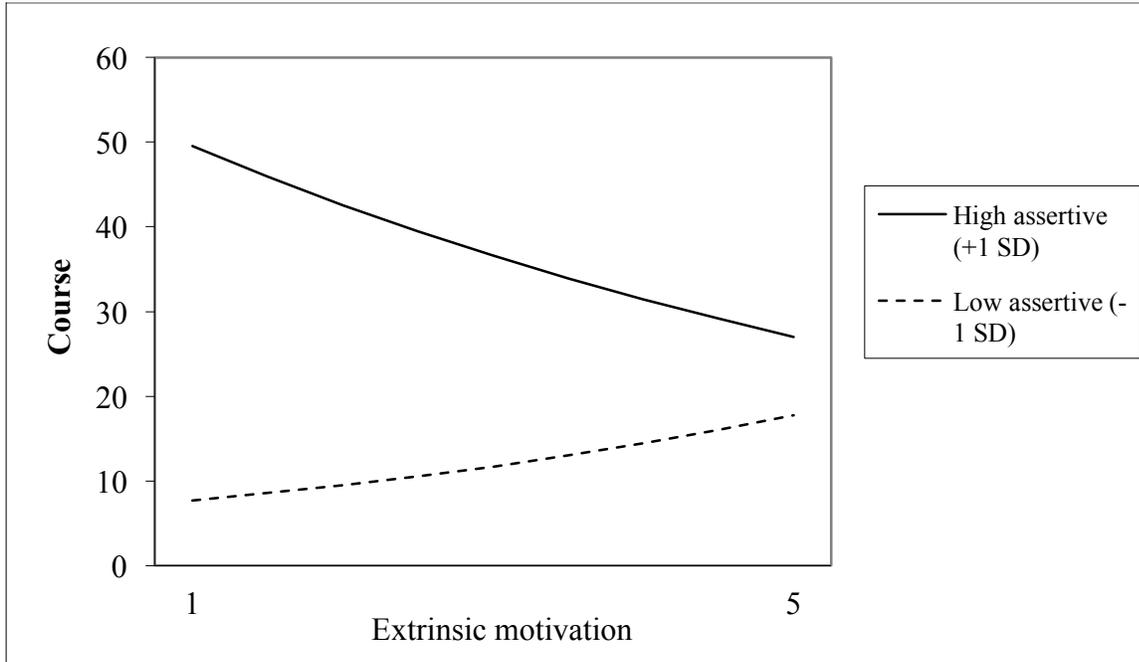
Note: SD=standard deviation

Figure 3. Interaction between manager assertive strategy and employee intrinsic motivation



Note: SD=standard deviation

Figure 4. Interaction between manager assertive strategy and employee extrinsic motivation



Note: SD=standard deviation