경영학 석사학위논문

Goal Orientation and Innovation Implementation Forms

목표지향과 혁신 이행의 형태

2015년 8월

서울대학교 대학원

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이 논문을 경영학석사학위논문으로 제출함

2015년 5월

서울대학교 대학원

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Abstract

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Existing empirical studies have the tendency of regarding innovation implementation as a mechanical or even automatic process, overlooking the possibility of various implementation forms may appear based on the interplay between an innovation and its targeted users. Drawing on goal orientation literature and relevant theories, this study aims to investigate how employees' goal orientation plays a significant role in influencing the way they implement innovations. Three types of implementation forms: active implementation, passive implementation and implementation avoidance were identified through this research. In this study, I hypothesize that learning goal orientation (LGO) will lead

to active implementation, performance approach goal orientation (PGO) will positively linked to passive implementation, and performance avoidance goal orientation (AGO) will have positive relationship with implementation avoidance. In addition, the three implementation forms are also predicted to lead to different levels of innovation effectiveness. Besides, perceived ease of use (PEU), innovation implementation autonomy and implementation efficacy are identified as moderators that affect employees' innovation implementation forms and innovation effectiveness. Hypotheses were empirically tested with data collected in a manufacturing factory in China, including 134 subordinates and 26 supervisors. This study is expected to make some contributions to innovation implementation literature.

Keywords: Innovation implementation, goal orientation, perceived ease of use, autonomy, implementation efficacy, innovation effectiveness

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Ⅰ. INTRODUCTION

Innovation can be broadly defined as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. 12). In the face of increasingly fierce competition, rapid market change, and frequent technological transformations, innovation is regarded as a source of competitive advantage and economic growth (Klein & Knight, 2005; Sung, Cho &Choi 2011). “Innovation offers the potential for substantially improving the performance for organizations, such as business in the global economy” (Talukder, 2014, p.1). Though it is widely acknowledged that in order to survive or thrive in this turbulent environment, organizations need to be innovative, organizations often end up with unsatisfactory results. Researcher in this field gradually came to realize that it is innovation implementation failure rather than innovation failure that result in most of the backfires (Klein & Sorra, 1996; Choi & Chang 2009,Sung & Choi, 2014).

According to Klein & Sorra, innovation implementation can be conceptualized as a process of employees’ proper and consistent use of an innovation. It is a phase occurs after innovation adoption, which typically refers to senior organizational managers’ decision to apply an innovation. For an innovation to be successful, it depends more on how employees implement the innovation in their work than on the simple decision to use it. Innovation implementation failure happens when employees in the organizations do not use the innovation as frequently or faithfully than required for the potential advantages of the innovation to be achieved (Klein et al 1996).

Existing research on innovation implementation can be generally divided into three streams. Scholars address this issue from micro perspective typically conduct their studies at the individual level, focusing on studying individual determinants of psychological and behavioral reactions to a particular innovation (Choi & Price, 2005). In addition, a number of research center on studying organizational factors that affect the effectiveness of innovation implementation, such as organizational climate, structure organizational, culture (Klein et al, 1996, Zalesny & Vecchio, 1997). Besides, there are many a scholars who tried to combine the two perspectives, for example, Choi& Chang (2009) presented a framework to explain how employees and institutional factors jointly influence various implementation outcomes.

However, unfortunately, the majority of the existing empirical studies just consider innovation implementation as a mechanical or even automatic process, neglecting that various outcomes that may emerge during the implementation process (Choi & Moon, 2013). An underlying point that worth noting is existing research acknowledge both innovation characteristics and factors that presumed to have influence on employees' willingness and ability to use innovation will also affect how employees implement innovations, but they generally treat implementation as a binary construct either "successful" or " aborted". In other words, compared to simply centering on the study of whether the implementation is successful or not, research on how employees implement the innovation is more urgent in current context. By identifying which implementation behavior is more

efficient or more closely related to the final success, it can offer more insights to companies. What's more, nowadays the member constitutions of organizations are increasingly heterogeneous (Horwitz and Horwitz, 2007), there is a great possibility that the heterogeneous individual users will adopt different implementing ways to apply a given innovation.

Based on the Choi and Moon's (2013) differentiation of multiple implementation forms, this study identified three forms of implementation: active implementation, passive implementation and implementation avoidance. Active implementation refers to employees' active participation of innovation implementation. To be specific, employees implement the innovation with their subject interventions. They do not confine themselves to the mechanical adherence of the guidance from companies. They strive to carry out the task to achieve the most optimal results. Sometimes they will even alter, modify some details if they think it's beneficial to their work. Active implementation also manifests in the way of learning, especially when employees find the innovation beyond their understanding which may lead to their ineffective implementation, employees will actively to learn before their actual use of innovation. In contrast, passive implementation refers to employees implement a particular innovation with minimum changes. Employees implement innovation in a passive way will perform the task exactly as they are told to. Seldom will they try to understand the benefits or meaning of the new innovation. So ideally, passive implementation will lead to a highly faithful embodiment of the original design of the innovation. But since

innovation generally involves some novel knowledge, skills, employees' lack sufficient understanding of the target innovation or their unwillingness to learn will lead to unsatisfactory results. Thus passive implementation may generally lead to the compromise of the original innovation. The third type of innovation implementation is innovation avoidance which means employees refuse to implement innovation. It's obvious that innovation will fail if employees refuse to implement innovation. From the descriptions of three differentiated implementation behaviors, it's perceivable that the three different implementation forms will also lead to different levels of innovation effectiveness.

Specifically, this study will investigate how employees' goal orientation (GO) plays a role in affecting employees' innovation implementation behaviors. GO is defined as individuals' attribute or goal tendencies in accomplishment circumstances (Payne, Youngcourt & Beaubien, 2007). It is well acknowledged that goal orientation decides individuals' perceptual-cognitive frameworks of how they comprehend and cope with achievement situations (e.g., Van Yperen, 2003, Barron & Harackiewicz, 2000). When a new innovation is introduced, different goal orientated employees will variably assess the innovation and respond in different ways to deal with the situation. Klein (et al 2005) also pointed out goal orientation is one of the six key factors that shape the process and outcome of innovation implementation. They pointed out learning goal orientation is a key set of belief which enables employees and organizations to take risks and grow. However, how learning goal influence employees to implement innovation, and how performance

goal oriented and avoidance goal orientated employees actually implement innovation remains to be a question. Besides, though there is a substantial boy of research between individuals' goal orientation and individuals' outcome like performance (Steinmayr & Spinath, 2009; Zusho, Pintrich, & Cortina, 2005) and creativity (e.g. Hirst, Knippenberg &Zhou, 2009; Hirst, Knippenberg., Chen & Sacramento, 2011), little is known about how different goal oriented individuals will implement innovation. Thus I believe the study of how employees' goal orientation affects their way of implementing innovation can be meaningful. In this way this paper will make a contribution to the innovation implementation and goal orientation literature.

Ⅱ. HYPOTHESIS DEVELOPMENT

1. Goal Orientation and different innovation implementation forms

Goal orientation is a stable individual disposition that has an effect on how individual address, comprehend, and cope with accomplishment situations (Dweck & Leggett, 1988; Elliot & Church, 1997). Achievement motivation theory states that goal orientation indicates individuals' self-development beliefs and their corresponding behaviors under these beliefs. Initially, goal orientation was defined as a binary construct that has two facets: learning goal orientation (LGO) and performance goal orientation (Dweck et al, 1988). Individuals high in learning goal orientation pay attention to the development of competency and task mastery (Hirst et al 2009). They view ability as improvable and incremental so they will exert effort to better their performance (Janssen & Yperen 2004). When given a task, they will view it as an opportunity to learn and improve, meanwhile considering errors as an inevitable part of learning process (Yi & Hwang, 2003, Ames & Archer, 1988). In comparison, performance goal oriented individuals are more concerned of demonstrating capability to others (Hirst et al 2009). They have the tendency to see ability as a fixed entity. Performance goal orientation drives an individual to attain favorable judgements from others. In addition to this dichotomy, later theoretical and empirical research generally divides performance goals into approach and avoidance two aspects (e.g., Elliot et al 1997; Elliot & Harackiewicz, 1996). Recent scholars in the field of goal orientations mainly support this tri-chotomous goal framework (DeShon & Gillespie, 2005). In comparison to

performance-approach goals (PGO) which refers to the tendency of seeking approval from others and demonstrating capabilities relative to others, performance-avoidance goals orientation(AGO) generally refers to individuals' natural disposition of avoiding demonstrating inability or receiving negative judgments from others.

1.1 Learning Goal Orientation and Active Implementation.

Previous studies showed that learning orientation is a strong internal driving force that propels individuals to develop their capabilities (VandeWalle, Brown, Cron, & Slocum, 1999). In addition, studies show that individuals high in LGO have the tendency to look out for challenges, stay positive when encountering obstacles, make efforts to learn from experience, and strive to attain a sense of mastery (Ames, 1992; VandeWalle, Cron, & Slocum, 2001). LGO is also found to have a positive bearing on the amount of effort and perseverance individuals will spend on a given task (Fisher & Ford, 1998). Therefore employees with high learning goal orientation would be more likely to treat the innovation as a learning opportunity.

As mentioned above, active implementation generally involves diverse modifications that employees make during the innovation implementation process. These modifications, especially the novel and valuable changes can also be considered as a kind of creativity. According to Amabile's (1996) componential model, "creativity, domain relevant skills, creative relevant skills, and intrinsic task motivation" are key to individual creativity. Scholars have argued that learning

orientation is an important motivational source for creativity since the characteristics of learning orientation are particularly related to those conditions (Gong, Huang & Farh., 2009; Hirst et al., 2009). First, employees with high learning orientation focus more on learning new knowledge and engage in deep processing strategies when performing complex tasks than those with low learning orientation (Elliot & McGregor, 2001). They invest additional cognitive effort to solve complex and challenging tasks, and these activities will lead to the development of new and practical ideas for organizations, thus there is a great likelihood that with sufficient expertise they will form their own thinking towards the innovation adopted by the organization, and the thought-provoking ideas they raise will challenge the original innovation which will finally leads to the modifications of the original innovation. Second, learning goal oriented employees report having intrinsic interest in task itself and enjoying challenging tasks (Janssen et al 2004; Pintrich, 2000). So when an innovation is adopted, rather than mechanically implementing, learning goal oriented employees are more likely to be attracted to the challenging tasks and will be driven to investigate the underlying mechanisms of the innovation. Thus once they figure out the functionality of innovation, they will be more likely to implement the innovation in the way they see fit. Inferring from the above theories, a positive relationship between LGO and active implementation can be expected. Thus hypothesis1 is postulated as:

Hypothesis1: Employees' learning goal orientation is positively related

to active implementation. .

1.2 PGO and Mechanical Implementation.

PGO individuals are found having the tendency to "outperform" others to demonstrate their capability. While there is a bundle of studies have revealed that performance-approach orientated individuals are inclined to put sufficient effort into completing their tasks and thus perform better (e.g., Barron et al 2000; Harackiewicz, Barron, Carter, Letho, & Elliot, 1997), PGO individuals are supposed to be closely related to passive innovation implementation form rather than active innovation implementation. It is because according to the achievement goal theory, different goal oriented individuals are motivated to meet their own performance standard (Janssen et al 2004). However, in terms of the performance standards, learning goal oriented and performance oriented individuals have quite different criteria. Learning goal oriented individuals tend to increase their expertise and persevere when encountering setbacks and obstacles (Dweck, 1999) thus they can be expected to fulfill more than in-role responsibility. In contrast, since the goal of performance approach goal orientated individuals is motivated only to outperform their co-workers and gain recognition from their superiors and company, they will be more willing to devote their resource and energy to in-role job requirement. Since active implementation is not explicit in the job requirement, so PGO individuals are more likely to implement the innovation in the way that they are assigned to. Besides, individuals with PGO tend to view challenging tasks

as a threat as the possibility of failure will demonstrate their inadequate ability, PGO will not consider the innovation implementation process as a chance to demonstrate their capabilities. Thus there is a great possibility that PGO individuals will implement innovation in a passive manner.

Hypothesis 2: Employees' performance approach goal orientation is positively related to passive implementation.

1.3 AGO and Innovation Implementation Avoidance

Performance-avoid goal orientation refers to individuals' tendency of avoiding undesirable evaluations. Button, Mathieu & Zajac (1996) claimed that activities that may incur the possibility of demonstrating incapability and the risk of getting unfavorable judgement from others will evoke AGO individuals' defensive behaviors. Some scholars claimed that high AGO resembles a fear of failure in a learning or performance context (Elliot & Church, 1997). Besides, some research suggests that high AGO individuals are less likely to engage in self-development programs (Porath & Bateman, 2006), so they showed comparatively lower levels of learning and academic performance (Payne et al., 2007). In addition, the tendency of performance-avoid goal oriented individuals spend too much attentional resource worrying and fearing, thus they will also encounter more task distractions (Rawsthorne & Elliot, 1999) and more cognitive disorder. The fear of displaying incompetence to others will not only impede high AGO individuals to engage in

the innovation implementation process which involves too much risk and uncertainties but also discourage employees to participate the learning process. Therefore, in the case of AGO, employees are likely to avoid the risk of implementing innovation.

Hypothesis3: Employees' performance avoidance goal orientation is positively related to implementation avoidance.

2 Moderating Factors Between Goal Orientation and Implementation Forms

Drawing on coping theory, Beaudry and Pinsonneault (2005) posited that innovation users apply different adaptation strategies according to an evaluation of both the expected consequence of a given event(which is conceptualized as primary appraisal) and his/her control over the situation (which is defined as secondary appraisal). Especially they pointed out that in the secondary process, three main components will affect the appraisal. The three contents are work, self and technology. Work means employees' control over the work which suggests the degree to which users feel they are given the autonomy to deal with their tasks and can perform a task in a way they see it fit. Control over the self refers to whether users feel they can adjust themselves to the new environment. Finally, control over technology refers to how much impact users feel they have on the innovation (Beaudry& Pinsonneault, 2005). Based on that, we can predict that implementation

autonomy will interact with employees' goal orientation to affect their implementation behavior. Besides, perceived ease of use will also strengthen their control over innovation itself. Thus in this study perceived ease of use, and implementation autonomy are identified as the two moderators that will potentially interact with employees' goal orientation to affect their innovation implementation behaviors.

2.1 Perceived Ease of Use.

Information systems literature revealed that desirable attributes such as perceived ease of use, is more likely to be accepted and actually used, which can bring more benefits from the innovation (Agarwal & Prasad, 1997; Venkatesh & Davis, 2000). According to Beaudry& Pinsonneault 's Coping Model of User Adaptation (CMUA), apart from employees' individual traits that will affect employees' appraisal toward innovation, their sense of control of technology will also influence how individuals assess innovation. Perceived ease of use is likely to increase employees' sense of control over innovation thus will lead to more positive appraisal and behavioral adaptations. Self-Determination Theory suggested that individuals have three inherent psychological needs, the needs for competence, relatedness, autonomy in order for their growth and development (Ryan, Deci 2000). Sense of competence is expected to facilitate their intrinsic motivation which further leads to creativity (Gagne, Deci 2005). If the innovation is too completed which far exceeds employees' capability, it will decrease

employees' perceived competence, rendering employee having no motivation to fulfill the task at all (Deci & Ryan, 1985). However, perceived ease of use is not likely to have same effects on all kinds of individuals. LGO individuals who have the tendency of learning new knowledge and engaging in deep processing strategies are less likely to treat perceived ease of use as an ideal task trait. In comparison, individuals with PGO have the tendency to view challenging tasks as a threat is more likely to regard perceived ease of use as desirable. Perceived ease of use will ensure PGO employees that it's not likely to bring any threats or undesirable consequence, so perceiving ease of use they will participate more in passive implementation process. In terms of employees with AGO who spend too much attentional resource worrying and fearing of displaying inability, perceived ease of use will enhance their confidence to do some minimum tasks that won't expose their lack of capability. Thus perceive ease of use drive AGO employees to passively implement innovation.

Hypothesis 4a: Perceived ease of use will positively moderate the relationship between PGO and passive implementation.

Hypothesis 4b: Perceived ease of use will positively moderate the relationship between AGO and passive implementation.

2.2 Implementation Autonomy

As mentioned above, employees' sense of control over their work influences

their evaluation of innovation. According to Shaw and Barrett-Power (1997), control over the work refers to how much autonomy the users feel they have over their job and are able to alter the work contents when given a challenging task. Thus implementation autonomy which refers to employees' autonomy to implement innovation will also interact with employees' goal orientation to altogether affect employees' implementation behaviors. According to cognitive evaluation theory, external factor such as rewards and evaluations will undermine individuals' intrinsic motivation, while job autonomy will increase individuals' intrinsic motivation (Zuckerman, Porac, Lathin, Smith, Deci., 1978). Cognitive evaluation theory emphasized it is important to make individuals feel that they are competent and autonomous to motivate them. High level of autonomy are more likely to foster creativity because employees will feel a sense of self-determination on the job and will feel more responsibility and intrinsic interest (Deci & Ryan, 1985), job autonomy also makes employees free from external controls or constraints (Spreitzer, 1995). In addition, Self-determination theory points out that autonomy is a sense of volition ad having experience of choice (Gagne & Deci, 2005), which is totally distinguished from being controlled. Autonomy is linked with intrinsic motivation while controlled motivation is associated with pressure and a sense of constriction. Previous studies also demonstrated that intrinsic is critical to take risks, bring up diverse solutions, and transfer creative ideas into workable innovations (Shalley, Zhou & Oldham., 2004). Thus when given sufficient autonomy, employees are more likely to involve in taking challenges,

creative thinking, and problem solving, all of which are expected to bring creativity (Tierney & Farmer, 2002). Thus innovation implementation autonomy will also interact with employees' goal orientation to influence their implementation forms.

Hypothesis 5a: Innovation implementation autonomy will positively moderate the relation between LGO and active implementation.

Hypothesis 5b: Innovation implementation autonomy will positively moderate the relation between PGO and active implementation.

3 Implementation Forms and Innovation Effectiveness

Innovation effectiveness, which refers to the benefits or positive outcomes attained from a given innovation (Klein & Sorra, 1996). Previous studies have noted that implementation effectiveness is critical but not adequate for innovation effectiveness (Klein & Sorra, 2001). However, past studies have not identified different implementation forms would have different levels of implementation effectiveness which eventually lead to different levels of innovation effectiveness. From above descriptions of active implementation, passive implementation and implementation avoidance, we could know that active implementation is a process generally involves employees' extra efforts and creativity, passive implementation is a mechanical process which often results in the compromise of the original intention and implementation avoidance is a negative process which employees refuse to implement innovation. Thus it's not irrational to infer that active

implementation will lead to highest level of innovation of effectiveness. Passive implementation will also lead to innovation effectiveness, though it may be less effective, and implementation avoidance will compromise company's innovation.

Hypothesis 6: Active implementation will be positively related to innovation effectiveness.

Hypothesis 7: Passive implementation will be positively related to innovation effectiveness.

Hypothesis 8: Implementation avoidance will be negatively related to innovation effectiveness.

3.1 Implementation Efficacy

Previous studies showed that self-efficacy expectation is a critical predictor of people's behavior and performance, and it's termed as beliefs in one's capabilities to plan and carry out courses of action (Bandura, 1997). However, as Gist & Mitchell (1992) indicates efficacy measurement must be "tailored to the domain being studied" in the regard of content as well as degree of specificity (Bandura, 1997), because general self-efficacy reflects overall belief in one's capacity in all domains (Chen, Gully, & Eden, 2001). In this study, we specify implementation efficacy in the context of innovation implementation, thus implementation efficacy refers to belief in one's capability in innovation implementation. Previous studies revealed that self-efficacy indicates many aspects of behavioral choices including

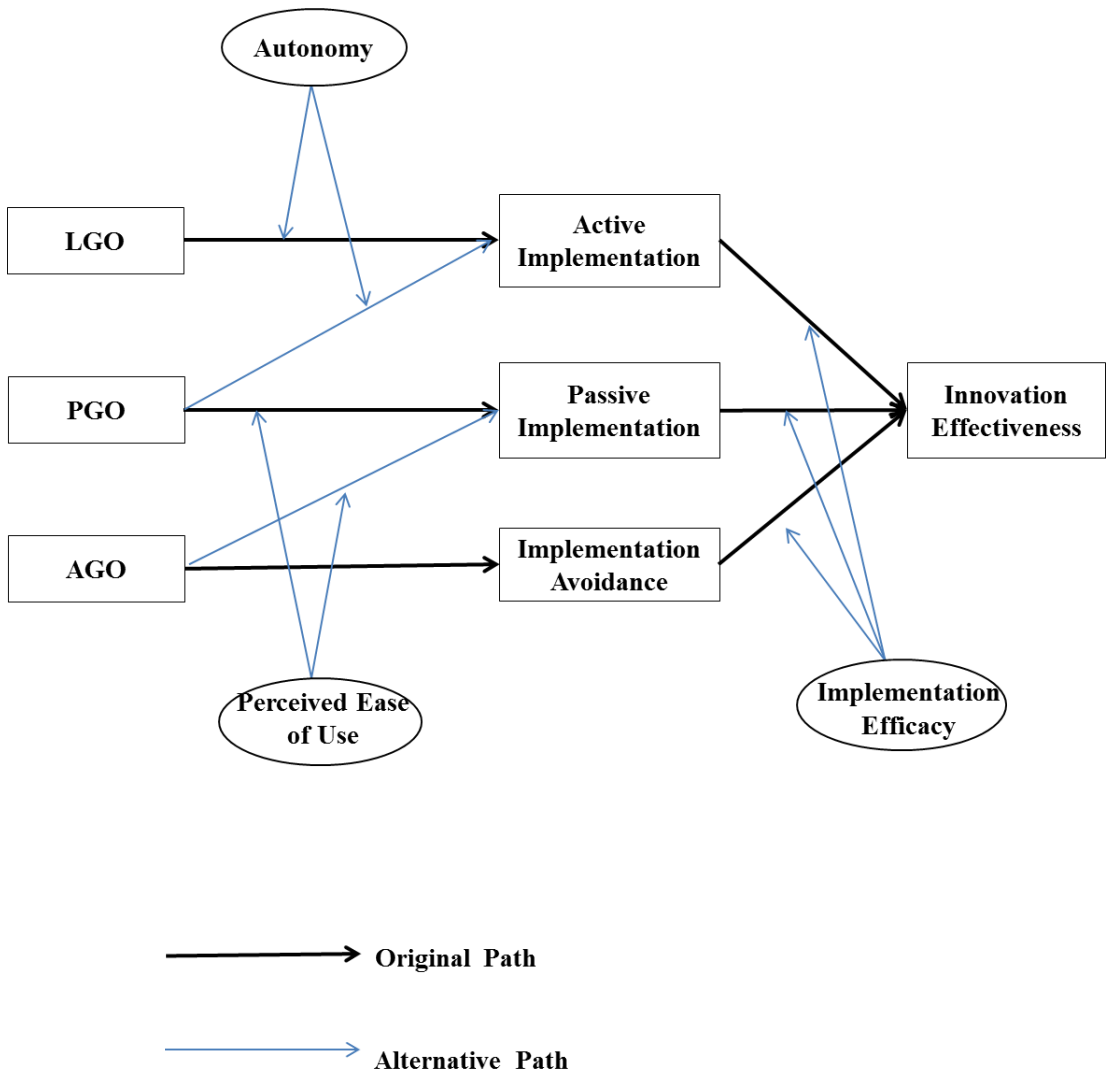
level of aspiration, perseverance in front of obstacles, positive or negative ways of thinking and feeling, and task taking (Bandura, 1997; Gist & Mitchell, 1992). Self-efficacy was also demonstrated to have positive influence on individual's initiative (Speier& Frese, 1997). Thus in the context of innovation implementation, stronger self-efficacy on innovation implementation are also likely to propel employees have higher level of level of aspiration, task persistence thus take more initiatives. Employees who implement the innovation in the way of active implementation are more likely to implement innovation more actively, and employees who implement in a passive way will also do more passive implementation, and with strong implementation efficacy even employees who have the tendency to avoid implementing innovation are more likely to implement innovation. Thus hypotheses were postulated as:

Hypothesis 9a: Implementation efficacy will positively moderate the relation between active implementation and innovation effectiveness.

Hypothesis 9b: Implementation efficacy will positively moderate the relation between passive implementation and innovation effectiveness.

Hypothesis 9c: Implementation efficacy will negatively moderate the relation between implementation avoidance and innovation effectiveness.

Figure1. Research Model



Ⅲ. METHODS

1. Sample and Procedures

To empirically test above hypotheses, I conducted a field study in a large Chinese manufacturing company. For this study, an Enterprise Resource Planning (ERP) system was identified as an innovation program. This system was implemented from a year ago and now this system was expanded to every corner of this company. To encourage employees master the skills that necessary to use the ERP, the company offered intensive training and established a specialist team exclusively responsible for dealing ERP related problems that employees encountered every day. In this study, two survey instruments were used. Employees first answered and provided self-report information on demographics, goal orientations, perceived ease of the use of this innovation, implementation autonomy and implementation efficacy. In the next stage, supervisors were asked to evaluate their subordinates' implementation performance during this innovation program.

The overall sample consisted of 134 subordinates and 26 supervisors. And the 134 subordinates included 57 males and 77 females with the percentile of 42.5% and 57.5%. The average age of the employees was 31.8(SD=8.7), and the average tenure was 4.9(SD=4.1). Of the all the participants, 17.2% graduated from middle school, 29.1% had completed high school or equivalent, 31.3% were college degree, 21.6% obtained degree from university and 0.7% had higher degree.

Table 1
Summary of Sample

		Employee	
	Variables	Frequency	Percent
Gender	Male	57	42.5
	Female	77	57.5
	Total	134	100.0
Education level	Middle School	23	17.2
	High School	39	29.1
	College	42	31.3
	University	29	21.6
	Graduate School	1	0.7
	Total	134	100.0

		Employee
Age(years)	Total	134
	Mean	31.8
	Standard Deviation	8.7
Tenure(years)	Total	134
	Mean	4.9
	Standard Deviation	4.1
Team size	Total	134
	Mean	7.2
	Standard Deviation	2.0

1. Measures

In this study, all items were assessed by multi-item measures using a 5-point Likert-type, ranging from strongly disagree to strongly agree (1 = strongly disagree,

5 = strongly agree). The independent variables, moderating variables were rated by subordinates and the dependent variable was rated by supervisors.

Goal orientations. Drawing on VandeWalle, D et al (2001)'s study, LGO were measured by four items. Example questions: " An important part of being a good employee is continually improving my skills " and "I put in a great deal of effort sometimes in order learn something new about my job" (α = .749). PGO also included four items. Example questions: "It's important that others know that I am a good employee" and "I think that it's important to get good performance to show how intelligent I am" (α= .827). Two access AGO, four questions were asked Example questions: "I would rather not implement innovation than get poor performance" and "I would rather do a routine job that I can avoid doing poorly" (α= .799).

Perceived Ease of Use. This construct was measured using a scale developed by Davis, F. D (1989). The scale has four questions, sample questions: "Learning to use this innovation would be easy for me" and "I would find it easy to using this innovation to do what I want it to do" (α= .819).

Implementation Autonomy. This construct was measured based on the items developed by Spreitzer (1995). Three questions were surveyed. The three items were: " I have significant autonomy in determining how I use this innovation", "I can decide on my own how to go about using this innovation", "I have considerable opportunity for independence and freedom in how I use this innovation self-determination" (α= .854).

Active Implementation. To assess the level of active implementation, items were drawn from Sung and Choi (2014). Example questions "This employee puts effort to change and apply the this innovation tools according to his/her task demands/situations ", "This employee always searches for a new way to improve this innovation in his/her work "(α= .718).

Passive Implementation. To assess this construct, items were collected from Sung and Choi (2014). Example questions : "This employee straightforwardly follows the guidance of our company in using this innovation" , "This employee uses this innovation as he/she learned in the innovation training programs our company provided" (α= .792).

Implementation Avoidance. This construct were assessed by two items which were also developed by Sung and Choi (2014). Items of this construct contained "If this employee can avoid using the innovation, he/she does", "When this employee can do a task either using the innovation or not using the innovation, he/she usually choose not to use the innovation" (α= .889).

Implementation Efficacy. Based on previous studies (Choi &Chang, 2009; Choi & Vinokur, 2003; Klein et al., 2001), implementation efficacy were constructed by 4 items. Example questions: "I possess the skills and abilities required for implementing the innovation", "I am confident that I can contribute to the innovation implementation successfully" (α= .712).

Innovation Effectiveness. Innovation effectiveness was assessed through 4 items which were constructed by Klein et al. (2001). The four items included the

employees' performance, morale, productivity et ac. Example questions: "Because of this innovation, this employee's quality for product, service, or administration is improved" "Because of this innovation, this employee's morale enhanced" (α= .748).

Control variables: A number of control variables were included in this study. Gender (0=male, 1=female), education (1=middle school and lower, 2=high school, 3=college, 4=university, 5=graduate school and higher), age (in years), team tenure (in years),

2. Data Analysis

In this study, the data had a nested structure, with employees embedded in teams. Thus, I performed hierarchical linear modeling of the data (Byrk & Raudenbush, 1992) to test the theoretical propositions in our research framework empirically. The analysis used mean-centered variables for the variables in the research model except for the outcome variables. Moreover, to test the moderating effect of perceived use of innovation, innovation incentive, implementation autonomy, and implementation efficacy, Aiken and West's procedure was followed to examine interacting and moderating effects (Aiken & West, 1991). The relationships between variables were then plotted graphically to examine the effects at different levels of the moderating variables.

Ⅳ. RESULTS

1. Descriptive statistics

Table 2 shows the means, standard deviations, and correlations of the variables used in the study. Results showed that LGO was correlated with the PGO, and PGO was related with AGO. Furthermore, in terms of the mediating process, both active implementation and passive implementation was positively correlated with innovation effectiveness.

2. Hypotheses testing

Hypothesis 1-3 proposed that LGO, PGO and AGO is specifically positively related to active implementation. From the Model 2 in table 3, we can see that LGO was positively related to active implementation (β= .18, p <.05). So Hypothesis 1 was supported. However, the relationship between performance approach orientation and passive implementation was not significant, thus Hypothesis 2 was not supported (β= .03, ns). Besides, the results showed that AGO and implementation was also not significant (β= .01, ns), so Hypothesis 3 was not supported as well.

In terms of the moderating effects of perceived ease of use, Hypothesis 4a proposed that perceived ease of use positively moderate the relationship between performance approach orientation and passive implementation, Hypothesis 4b

proposed that perceived ease of use positively moderate the relationship between PGO and passive implementation. According to the results in Model 3 (Table 3), the relationship between PGO and passive implementation was significant (β= .13, p <.05), so Hypothesis 4a was supported. However, opposite to our proposition which predicted perceived ease of use will positively moderate the relationship between AGO and passive implementation, results showed that perceived ease of use negatively moderate the relationship between AGO and passive implementation(β= -.23, p <.01). Thus, Hypothesis 4b was rejected. In addition, the results also showed that perceived ease of use negatively moderate the relationship between AGO and active implementation (β=.16, p <.05).

To further investigate the interaction effects of goal orientation and perceived ease of use, we conducted a simple slope analysis (Aiken & West, 1991). As showed in Figure 2, when there was a high level of perceived ease of use, employees with performance approach orientation significantly increased passive implementation (β=.18, p <.05), whereas the effect was not significant when the level of perceived ease of use was low. And as indicated of Figure 3, when there was high level of perceived ease of use, employees with performance avoidance orientation significantly decreased their passive implementation(β= -.16, p <.01), nevertheless when there was a low level of perceived ease of use employees with performance avoidance orientation significantly increased their passive implementation(β= .19, p <.01).

Hypothesis 5a proposed that implementation autonomy moderates the

relationship between LGO and active implementation. Hypothesis 5b proposed that implementation autonomy moderates the relationship between performance approach orientation and active implementation. Results revealed that the interaction of implementation autonomy and LGO was not significant for active implementation (Table3, Model 3). Hence, Hypothesis 5a was not supported. But the interaction of implementation autonomy and PGO was significant for active implementation (β= .13, p <.05). Hypothesis 5b was supported. Besides, interaction of implementation autonomy and AGO was negatively significant for active implementation (β= -.17, p <.05). According to the simple slope analysis, Figure 4 showed when there was a high level of autonomy employees with PGO will increase their active implementation (β= -.13, p < .10) when the level of autonomy was low there was no significant interaction. Figure 5 indicated that when there was a high level of implementation autonomy, employees with performance avoidance orientation will largely increase their active implementation (β= .18, p <.05) whereas when the level of implementation autonomy was low, employees with performance avoidance orientation decreased their active implementation (β= - .12, p <.10).

Hypothesis 6 was proposed that active implementation is positively related to innovation effectiveness. As the results in Tables 4 Model 2 indicates, the relation between active implementation and innovation effectiveness is significant (β= .23, p <.01). So Hypothesis 6 was supported. Meanwhile Hypothesis 7 was proposed that passive implementation is positively related effectiveness. However, as we can

see from Table 4 Model 2, the result is not significant (β= .07, *ns*). Thus Hypothesis 7 was not supported. In terms of Hypothesis 8 which we hypothesized that implementation avoidance is positively related to innovation effectiveness, the result also rejected our prediction(β= 0.06, *ns*). Hence Hypothesis 8 was not supported as well.

Hypothesis 9a proposed that implementation efficacy moderates the relation between active implementation and innovation effectiveness. Results in Table 4 Model 3 confirmed this prediction (β= .27, p <.01). So Hypothesis 9a was supported. Hypothesis 9b proposed that implementation efficacy moderates the relation between passive implementation and innovation effectiveness. However, results in Table 4 Model 4 did not support this hypothesis (β= -.08,*ns*). Hypothesis 9c was postulated that implementation efficacy moderates the relation between implementation avoidance and innovation effectiveness. Nevertheless, this hypothesis was not supported by result (β= -0.01, *ns*). In this stage, we also conducted simple slope analysis. Figur6 demonstrated that when there was a high level of innovation efficacy, active implementation will significantly increase innovation effectiveness (β= .37, p <. 01). However there was no significant interaction of active implementation and innovation effectiveness when the level of innovation efficacy was low.

Table 2. Means, standard deviation, and correlations among study variables

Variables	*Mean*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	.43	.50	1													
2 Age (years)	31.82	8.75	.11	1												
3. Tenure (years)	4.86	4.20	.16	.55**	1											
4. Education	2.60	1.03	.04	-.56**	-.30**	1										
5. LGO	4.30	.62	-.11	-.04	-.02	.02	1									
6. PGO	3.21	.82	.07	-.09	.09	.30**	.25**	1								
7. AGO	2.63	.91	.14	.08	.05	-.02	-.08	.23**	1							
8. PEU	3.29	.75	.13	.00	.18*	-.08	.20*	.18	.19*	1						
9. ImpAto	3.08	.88	.11	.06	.11	-.07	.13	.20*	.20*	.40**	1					
10. ActiveImp	3.37	.66	-.15	.19*	-.05	-.18*	.13	-.06	-.01	-.08	.06	1				
11. Passive Imp	4.35	.63	-.26**	.07	.11	.09	.06	.12	-.05	-.01	.04	.33**	1			
12. ImpAvo	2.32	1.00	.22*	.15	.10	-.10	-.01	-.07	.09	-.09	.09	-.02	-.32**	1		
13. ImpEff	3.29	.70	.04	-.12	-.02	.10	.31**	.39**	.18*	.48**	.45**	-.03	-.18*	.02	1	
14. Innovation Effectiveness	3.38	.60	-.19*	.19*	-.06	-.24**	.11	-.06	.06	.07	.10	.51**	.22*	.09	.02	1

N=134* p <.05, **p < .01.

Table 3. Hierarchical Linear Models Predicting Implementation Behavior

		Active Implementation				Passive Implementation				Implementation Avoidance	
Variables	Null Model	Model 1	Model 2	Model 3	Null Model	Model 1	Model 2	Model 3	Null Model	Model 1	Model 2
Step 1: Controls											
Gender		-.06	-.04	-.02		-.22*	-.21*	-.20*		.25	.26
Age		.01	.01	.00		.00	.00	-.01		.00	.00
Tenure		-.02	-.02	-.02		.02	.02	.02		.01	.02
Education		-.02	-.03	.00		.10	.09	.07		.00	.02
Step 2: Main effects											
LGO			.18*	.16*			.01	.02			.20
PGO			.03	.01			.05	.08			-.14
AGO			.01	.03			-.02	.01			.06
Step 3: Moderation											
PEU								.07			
LGO * PEU								-.09			
PGO * PEU								.13*			

AGO * PEU								-.23**			
ImpAto				.03							
LGO * ImpAto				-.06							
PGO * ImpAto				.13*							
AGO * ImpAto				-.17*							
Within Level Variance σ^2	0.2201	0.2258	0.2146	0.2060	0.1664	0.1601	0.1627	0.1496	0.4220	0.4280	0.4201
Change in Variance $\Delta\sigma^2$		0.0058	0.0113	0.0086		0.0063	0.0026	0.0131		0.0061	0.0079
Proportion of Explained Variance(%)		2.63	4.99	3.99		3.82	1.61	8.02		1.43	1.85

Note: n=134. LGO = Learning Goal Orientation; PGO = Performance Approach Goal Orientation; AGO = Performance Avoidance Goal Orientation; PEU = Perceived Ease of Use; ImpAto = Implementation Autonomy

* p <.05, **p < .01.

Table 4 Hierarchical Linear Models Predicting Innovation Effectiveness

		Innovation Effectiveness		
Variables	Null Model	Model 1	Model 2	Model 3
Step 1: Controls				
Gender		-.06	-.04	-.03
Age		.01	.00	.00
Tenure		.00	.00	-.01
Education		.07	.05	.05
Step 2: Main effects				
ActiveImp			.23**	.18
PassiveImp			.07	.06
ImpAvo			.06	.04
Step 3: Moderation				
ImpEff				.07
ActiveImp * ImpEff				.27**
PassiveImp * ImpEff				-.08
ImpAvo * ImpEff				-.01
Within Level Variance σ^2	0.1455	0.1463	0.1116	0.1002
Change in Variance $\Delta\sigma^2$		0.0008	0.0347	0.0114
Proportion of Explained Variance(%)		0.56	23.71	10.20

Note: n=134. ActiveImp = Active Implementation; PassiveImp = Passive Implementation; ImpAvo = Implemenation Avoidance; ImpEff = Implementation Efficacy * p <.05, **p < .01.

Figure2. Interaction between performance PGO and PEU in predicting passive implementation

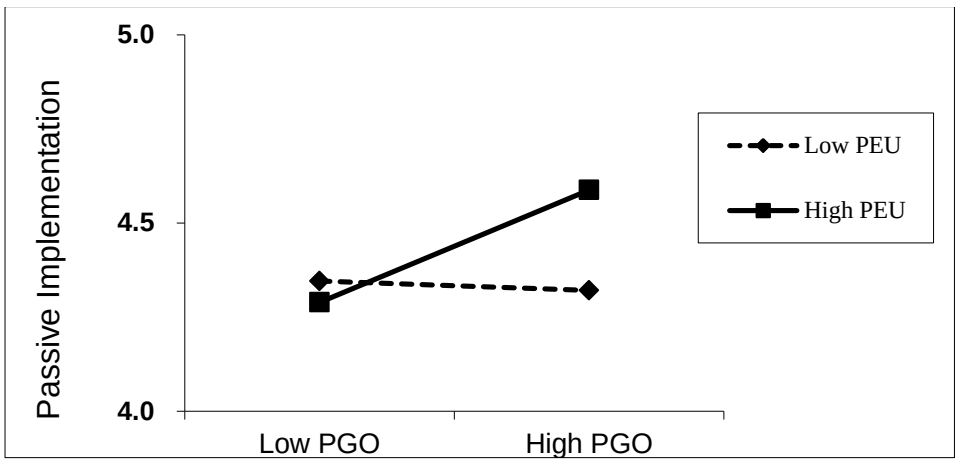


Figure3. Interaction between AGO and PEU in predicting passive implementation

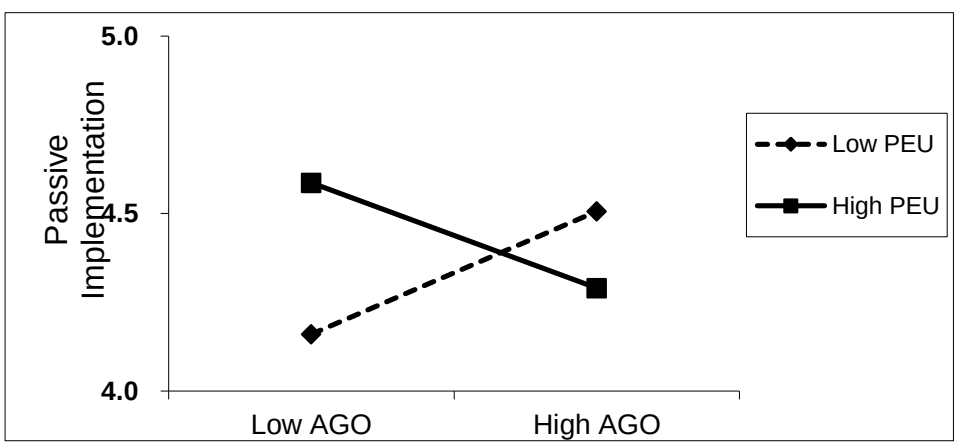


Figure 4. Interaction between PGO and implementation autonomy in predicting active implementation

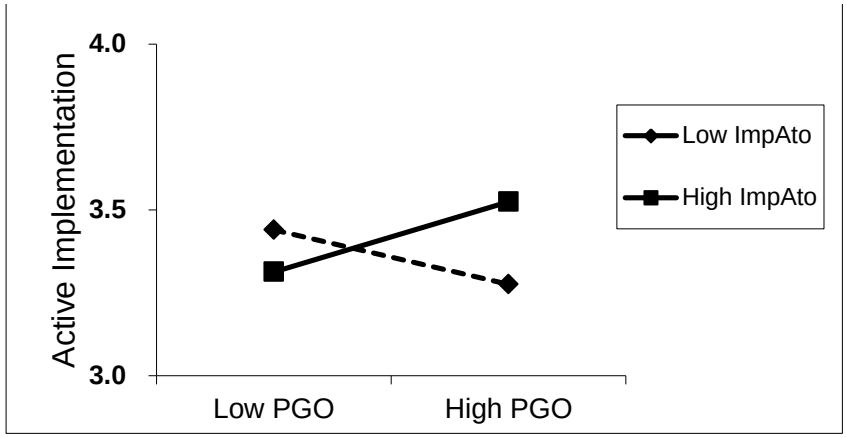


Figure5. Interaction between AGO and Implementation autonomy predicting active implementation

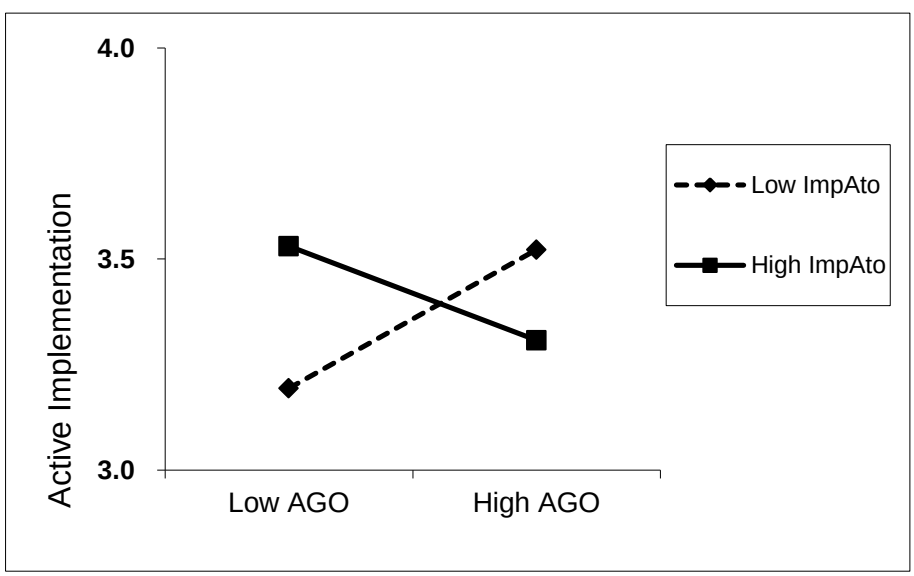


Figure 6. Interaction between active implementation and implementation efficacy predicting innovation effectiveness

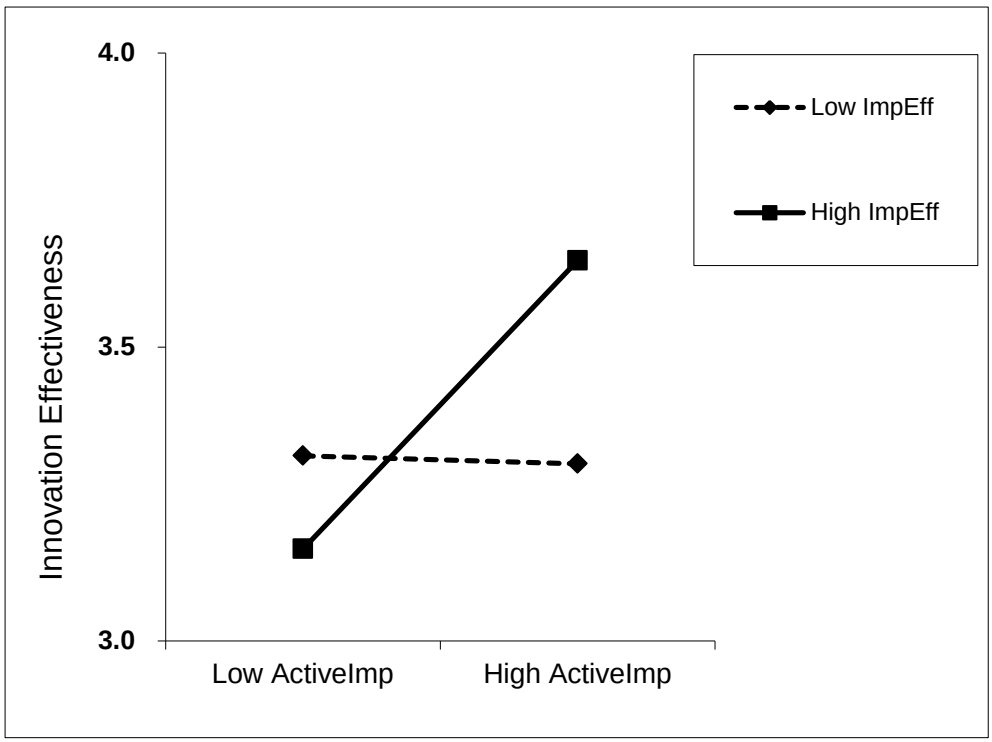


Table5 Summary of the Results

Hypotheses	Results
Hypothesis1: Employees' learning goal orientation is positively related to active implementation.	Supported
Hypothesis 2: Employees' performance approach goal orientation is positively related to passive implementation.	Unsupported
Hypothesis3: Employees' performance avoidance goal orientation is positively related to implementation avoidance.	Unsupported
Hypothesis 4a: Perceived ease of use will positively moderate the relationship between PGO and passive implementation.	Supported
Hypothesis 4b: Perceived ease of use will positively moderate the relationship between AGO and passive implementation.	Unsupported
Hypothesis 5a: Innovation implementation autonomy will positively moderate the relation between LGO and active implementation.	Unsupported
Hypothesis 5b: Innovation implementation autonomy will positively moderate the relation between PGO and active implementation.	Supported
Hypothesis 6: Active implementation will be positively related to innovation effectiveness.	Supported
Hypothesis 7: Passive implementation will be positively related to innovation effectiveness.	Unsupported
Hypothesis 8: Implementation avoidance will be negatively related to innovation effectiveness.	Unsupported
Hypothesis 9a: Implementation efficacy will positively moderate the relation between active implementation and innovation effectiveness.	Supported
Hypothesis 9b: Implementation efficacy will positively moderate the relation between passive implementation and innovation effectiveness.	Unsupported
Hypothesis 9c: Implementation efficacy will negatively moderate the relation between implementation avoidance and innovation effectiveness.	Unsupported

Ⅴ. DISSCUSION

1. Theoretical and Managerial Implication

The lack of innovation implementation research has been noted by many scholars (Greenhalgh, Robert, Bate Macfarlane, Kyriakidou, 2005). This study makes contribution to the implementation literature with its rigorous research design and data from China, which can help us gain a rough understanding of innovation implementation situation in China. In particular, compared to the existing researches which generally treat implementation process as a dichotomous result either success or failure. This study classified innovation implementation process into three differentiated forms: active implementation, passive implementation and implementation avoidance (Choi et al 2013). Through empirical study, this research found out that only active implementation was linked to innovation effectiveness. Thus for companies which aims to improve innovation effectiveness, this study indicates that innovation effectiveness may be improved through encouraging employees implement innovations more actively rather than mechanically.

Furthermore, this study also identified individuals' goal orientation plays a significant role in deciding which implementation forms they may adopt. This research found out LGO employees are most likely to engage in active implementation process. Though PGO and AGO employees' implementation forms were not linked to active implementation, this research also identified that when employees are given job autonomy PGO employees will engage in more active

implementation. Thus consistent with the previous studies that demonstrate job autonomy promotes employees engaging in challenging taking, creative thinking, and problem solving. This study revealed that job autonomy also propels employees to actively implement innovation. In addition, though plenty of previous studies have demonstrated that empowering leadership was positively related to performance (Srivastava, Bartol & Locke, 2006; Alge, Ballinger, Tangirala& Oakley, 2006) and creativity (Zhang & Bartol, 2010), this study confirmed the significance of job autonomy, thus from the standpoint of company the empowering employees or encouraging leaders to execute empowering leadership is also a corresponding strategy to achieve optimal innovation effect.

Besides, implementation efficacy was found to moderate the relationship between active implementation and innovation efficacy which highlights the critical of employees' implementation efficacy. Previous studies revealed that training has significant effects on users' positive attitude toward an innovation (Agarwal et al, 1999) and training for innovation has also be found to have positive relationship with innovation implementation (Klein et al 2005; Sung et al, 2014), thus by providing training to provide employees with adequate knowledge and skills, employees' implementation efficacy could also be improved.

2. Study Limitations and Directions for Future Research

This study has several limitations that should be mentioned. First, the three types of implementation behavior were measured by participants' self-reports.

Although previous studies have demonstrated association of self-reported measures of innovation usage and actual usage (Taylor & Todd, 1995), there still exists the possibility that common method variance would occur. Second, although this study revealed that LGO was related to active implementation and active implementation was related to innovation effectiveness, this study did not directly measure the mediating role of active implementation. Mediating analysis could also be conducted by future studies. Third our study was conducted in a company in China targeted in one ERP program, which could limit the range of variation in individual characteristics and innovation properties (Sung & Choi, 2014). To further investigate the dynamics of implementation behaviors, studies involve various innovation programs adopted in various organizational settings could also be conducted by future studies.

In spite of the limitations mentioned above, the study makes contributions to the innovation implementation literature by identifying different innovation implementation behaviors toward innovation. What's more, this study also investigated the individual traits that affect innovation implementation behaviors and innovation characteristics that interact with individual traits that simultaneously affect innovation implementation forms and innovation effectiveness. By expanding the current conceptual framework and empirical findings, several directions can be taken in future research. First, individual traits like locus of control, big five, affect can also be taken into consideration. Second contextual factors like innovation implementation climate, incentive, resource

availability, managerial support are also promising factors that would play a role in affecting employees' implementation behaviors. Third, innovation related characteristics like innovation complexity, innovation clarity would also have a bearing on employees' implementation behaviors. Future studies could also integrate individual traits, contextual factors and innovation characteristics together to investigate the effects on employees' implementation behaviors.

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APPENDIX

Survey Instrument

Active Implementation

1. This employee puts effort to change and apply the this innovation tools according to his/her task demands/situations

2. This employee always searches for a new way to improve this innovation in his/her work

3. This employee frequently comes up with ideas to solve problems in using the innovation

Mechanical Implementation

1. This employee straightforwardly follows the guidance of our company in using this innovation

2. This employee uses this innovation as he/she learned in the innovation training programs our company provided

3. This employee tries to adhere to the original instruction of this innovation

Implementation Avoidance

1. If this employee can avoid using the innovation, he/she does.

2. Even when this employee can do a task using the innovation, he/she still

use (follow) the old system (work process) most of the time.

Innovation Effectiveness

1. Because of this innovation, this employee's quality for product, service, or administration is improved.

2. Because of this innovation, this employee's morale is enhanced.

3. Because of this innovation, this employee's performance is improved.

4. Because of this innovation, this employee's productivity is enhanced.

Learning goal orientation

1. An important part of being a good employee is continually improving my skills.

2. I put in a great deal of effort sometimes in order learn something new about my job.

3. It is worth spending a great deal of time learning new approaches at work (e.g. dealing with customers)

4. Learning how to better do my job is of fundamental importance to me.

Performance Goal Orientation

1. Learning how to better do my job is of fundamental importance to me.

2. It’s important that others know that I am a good employee.

3. I think that it’s important to get good performance to show how intelligent I am.

Avoiding Goal Orientation

1. I would rather not implement innovation than get poor performance.

2. I would rather do a routine job that I can avoid doing poorly.

3. I’m more concerned about avoiding a low performance than I am about learning.

4. I prefer to avoid situations in company where I could perform poorly.

Perceived ease of use

1. Learning to use this innovation would be easy for me.

2. I would find it easy to using this innovation to do what I want it to do,

3. My interaction with this innovation would be clear and understandable,

4. It would be easy for me to become skillful at using this innovation

Innovation implementation autonomy

1. I have significant autonomy in determining how I use this innovation.

2. I can decide on my own how to go about using this innovation.

3. I have considerable opportunity for independence and freedom in how I use this innovation self-determination.

Implementation efficacy

1. I possess the skills and abilities required for implementing the innovation

2. I am confident that I can contribute to the innovation implementation successfully.

3. Providing a valuable contribution to the innovation implementation is well within the scope of my abilities

4. I do not anticipate any problems in contributing to the innovation implementation

요약 (국문초록)

목표지향과 혁신 이행의 형태

서울대학교 대학원

경영학과 경영학전공

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기존의 실증 연구는 혁신의 이행을 기계적 혹은 자동적인 절차라고 보는 경향이 있으며, 혁신과 혁신의 대상 사이의 상호작용에 근거해 혁신을 이행하는 다양한 형태가 나타날 수 있다는 가능성을 간과하고 있다. 목표 지향성과 관련된 문헌과 이론을 인용해서, 본 연구는 근로자들의 목표 지향성이 혁신을 이행하는 방법에 어떤 영향을 주는지 대해 초점을 맞추어 연구하고자 한다. 본 연구에서 혁신의 이행은 적극적인 혁신 이행, 수동적인 혁신 이행, 그리고 혁신 회피라는 세 가지 형태로 나타났다.

학습 목표 지향성(LGO)은 적극적인 혁신 이행으로 이어지고, 수행목표 지향성(PGO)은 수동적인 혁신 이행과 정적(正的) 관련이 있으며, 성과 회피 목표 지향성(AGO)은 혁신 이행 회피와 정적인 연관이 있을 것이라는 가설 수립 후 본 연구를 진행하였고, 위의 세 가지 혁신 이행 형태가 혁신의 유효성의 각기 다른 정도로 귀결됨이 예측된다. 또한, 인지된 사용 용이성, 혁신 이행의 자율성, 이행의 효능감이 근로자의 혁신 이행 형태와 혁신의 효과에 영향을 끼칠 조정자(moderator)로 드러난다고 가정하였다. 이상의 가설들은 중국의 한 제조 공장에서 수집된 데이터(34명의 부하직원과 26명의 상급자 포함)를 바탕으로 실증적으로 검증하였다. 본 연구가 혁신 이행에 관한 문헌에 기여할 것으로 기대된다.

주요어: 혁신 실행, 목표 지향성,인지 된 사용 용이성, 자율성,실행 효능감, 혁신 효과

학　번: 2012-23923