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Learning style and confidence: an empirical investigation of Japanese employees

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Abstract

This study aims to examine how learning styles relate to employees' confidence through a view of Kolb's experiential learning theory. For this aim, an empirical investigation was conducted using the sample of 201 Japanese employees who work for a Japanese multinational corporation. Results illustrated that the learning style group of acting orientation described a significantly higher level of job confidence than that of reflecting orientation, whereas the two groups of feeling and thinking orientation did not differ in job confidence levels. To confirm this result, by controlling socio-demographic variables such as gender, age, tenure, job functions, and positions, results of hierarchical regression also showed that action orientation employees exhibited higher confidence in their jobs than those with reflection orientation. This study would put a light on theoretical connection between learning styles and job confidence in business contexts. As a practical implication in organizational management, HR managers may need to propose that employees have to learn more through action orientation rather than reflection in order to enhance job confidence that will lead to better job performance.

Keywords

Learning styles; confidence; experiential learning theory; Japanese business

Introduction

Over 30 years learning styles have received much attention from theorists and practitioners in management, psychology, education, and other domains. The term “learning style” represents the view that individuals differ in preferred approaches in learning and consists of constructs of a way of individual learning (Price, 2004). Although learning style research topics vary with different disciplines and purposes, the majority of learning style research may concentrate the examination of individual differences in methods to a learning situation, its association with teaching and learning environments, its characteristics (eg., Entwistle & Peterson, 2004; Tamir, 1985; Sadler-Smith, 1996; Peterson, Stephen, & Armstrong, 2009; etc.), and its assessment and psychometrics (see, Duff, 2004; Kayes, 2002; Hawk & Shah, 2007; Pashler, McDaniel, Rohrer, & Bjork, 2009; etc.).

Under this research stream, studies about the effect of learning style on individuals in terms of psychological and behavioral facets have been relatively limited. With regard to a relationship between learning style and individual outcomes, several past studies showed that learning style affects performance and achievement of academic contexts (Riding, & Douglas, 1993; Cassidy, 2004; Demirbas & Demirkan, 2007), usage behavior of educational equipment (DuFrene, Lehman, Kellermanns, & Pearson, 2009), skill development (Sims, 1983; Boyatzis & Kolb, 1991, 1995; Mainemelis, Boyatzis, & Kolb, 2002; Davies, Rutledge, & Davies, 1997; Hamade & Artail, 2010), and job satisfaction (Yamazaki & Kayes, 2010; Carter, 1985; Sims, 1983). In considering the magnitude of learning style in the area of managerial psychology, it is critical to understand more about how learning style influences individuals’ psychological and behavioral aspects in organizational work settings: especially in relation to individual employees’ confidence, which serves to generate competitive advantages of today’s organizations (Luthans, Luthans, & Luthans, 2004). It is noticeable that a study conducted by

Chou and Wand (2000) related to the influence of learning style on self-efficacy—the academician’s terminology for self-confidence (Hollenbeck & Hall, 2004). However, its main contextual emphasis was on elementary students’ learning and their pedagogical computer trainings. Accordingly, the present study will attempt to fill this gap by focusing on employee confidence as one of four positive psychological capitals discussed by Luthans, et al. (2004).

Employee confidence is greatly important for organizational effectiveness and success (Luthans, et al., 2004). Research illustrated that it is importantly related to key individual and organizational outcomes, including strong work-related performance (Bandura, 1997; Stajkovic & Luthans, 1998a, 1998b; Judge & Bono, 2001), job satisfaction (Judge & Bono, 2001; Luthans, Zhu, & Avolio, 2006), work motivation (Ayupp & Kong, 2010), and organizational commitment (Luthans et al., 2006; Werbel, Landau, & DeCarlo, 1996). According to Bandura (1995), self-efficacy (i.e., confidence) involves human functioning through cognitive, motivational affective, and selection processes. Efficacy beliefs are developed through the four types of experiences that consist of enactive mastery experience, vicarious experience, verbal persuasion, and physiological and affective states (Bandura, 1997). Of those developing factors, enactive mastery experiences are most influential to build efficacy because of providing individuals with direct performance information for efficacy development (Bandura, 1997; Stajkovic & Luthans, 1998b). However, performance accomplishments themselves are insufficient to build confidence and do not involve directly developing confidence (Luthans, et al., 2004). Confidence development requires cognitive processing about perceptions of one’s ability and environmental factors, and it entails diagnostic information processing about previous performance (Luthans, et al., 2004; Stajkovic & Luthans, 1998b).

The above explanation of confidence building and development seems an association with a learning process in which individuals can create knowledge, skills, or attitudes through processing information based on study and experiences. It is possible to infer that some individuals are inclined to a profound analysis on their own performance results, while others may tend to reflect on their own abilities internally when they completed challenging tasks. Learning styles concern the perspective that different people have different approaches to learn information (Pashler, et al., 2009) and possess their own preferences for and perceptions of how learning styles process information (Price, 2004). Accordingly, an intriguing question is raised. What learning style contributes to confidence development in work settings? To the contrary, what learning style hinders developing confidence? More simply, how are learning styles related to the degree of confidence? Because very few researchers have investigated these questions in business contexts in the past, a relationship between learning styles and confidence in organizations still remain undefined or insufficiently understood. Therefore, this study will deal with these questions.

Learning styles

Since the 1970s, a variety of learning style definitions has been presented in the literature, according to different theoretical positions accompanying with its instruments of the construct (Cassidy, 2004). McAdams and Pals (2006) describe learning style as types of broad concept of personality using the theoretical foundation derived from a big five model of personality. Gregorc (1979) shows that learning style include distinctive behaviors as indicators of how individuals learn from and adapt to their environments. His learning style model that consists of four mind qualities (Gregorc, 1985) is built on phenomenological research (Marshall, 1987). Kolb (1984) defines learning style as an individual's preferred approach to learning situations in which individuals require adapting to their environment

through knowledge creation. His learning style model entails individual experiences as a source of learning (Kolb, 1984). Riding and Cheema (1991) offer a categorization of style within two basic dimensions of wholist–analytic, which serves to process information, and verbalizer–imager, which represents information. Flemming (2001) views learning style as individual’s characteristics and preferred methods in which individuals gather, organize, and think about information through visual, auditory, kinesthetic, and reading/writing. Finally, Dunn and Dunn (1999) describes learning style as the way in which individuals learn by concentrating on, processing, internalizing, and retaining new and difficult information. Unlike other learning models, their learning model consists of five stimulus components into which multiple elements are converged (Dunn, 1990). According to the survey to learning and cognitive style researchers by Peterson, Rayner, and Armstrong (2009), approximate 40 % of researchers use the definition of learning style showing that ‘Learning styles are an individual’s preferred ways of responding (cognitively and behaviourally) to learning tasks which change depending on the environment or context (p.520).’

Although learning style models differ with researchers as described above, their approaches to learning style may not be so different (Demirbas & Demirkan, 2007). Among the various learning style models, Kolb’s (1984) experiential learning theory was applied for this study because his learning model shows the intellectual methods in terms of information processing in learning (Cassidy, 2004). Although there have been criticisms against Kolb’s learning model like others (see Freedman & Stumph, 1980; Holman, Pavlica, & Thorpe, 1997; Vince 1998, etc.), his experiential learning theory is one of the most influential models in the areas of management learning and education (Kayes, 2002; Duff & Duffy, 2002), cross-cultural management learning (Yamazaki & Kayes, 2004, 2007, 2010), general education (Jarvinen, 1998), and other disciplines.

Kolb's learning style model

Kolb's (1984) learning model is characterized by the main function of individual experiences that play a central role in learning and its process. It contains affective, cognitive, behavioral functions so that it relates to entire human activities (Yamazaki, 2005). Kolb (1984) proposes learning style model that consist of four key modes of learning: concrete experience (CE), abstract conceptualization (AC), reflective observation (RO), and active experimentation (AE).

The CE mode involves grasping experience through sensing and feelings, generating apprehensive knowledge (Kolb, 1984; Kolb, Boyatzis, & Mainemelis, 2001; Kolb & Kolb, 2005) that can be translated as tacit knowledge (Yamazaki & Kayes, 2004). In contrast, the AC mode, which is dialectically opposite to the CE mode, serves to conceptualize information as comprehensive knowledge—that is, explicit knowledge—by logical thinking and analytical reasoning. While the two modes of the CE and the AC function to make two different kinds of knowledge, the RO and the AE modes work to convert one type of knowledge into another by transforming one form of knowledge between the CE and the AC modes. The RO mode entails reflecting on experience in the form of tacit knowledge by internally observing it within the self. The RO mode emphasizes an introspective way to convert tacit knowledge into explicit knowledge by clarifying the meaning of experiences. In contrast, the AE mode, which has a dialectical relationship with the RO mode, requires acting to examine explicit knowledge made by the AC mode. This experimental action then generates an individual's new experience as a source of tacit knowledge made by the CE mode. The AE mode therefore works to transform explicit knowledge into tacit knowledge through acting.

Individuals tend to develop two learning modes in the process of learning (Kolb, 1984). One describes either the AC or CE mode in line with one dialectical learning

dimension that comprises of the AC and CE modes, while the other represents either AE or RO mode in the other learning dimension of the AE and RO modes (Kolb, 1984; Mainemelis, et al., 2002). Consequently, four fundamental learning styles are formed through combinations among the four learning modes within one of those two dialectical learning dimensions (Kolb, 1984; Kolb & Fry, 1975; Kolb, et al., 2001; Kolb & Kolb, 2005). The diverging learning style develops into specialization of the two learning modes of the CE and the RO. The assimilating learning style accentuates the AC and the RO modes. The converging learning style specializes in the AC and AE modes. Finally, the accommodating learning style is composed of the CE and AE modes. Figure 1 describes Kolb's learning model.

Insert Figure 1 about here

Confidence and learning styles

Confidence that is a positive psychological capital vital to the success of organizations (Luthans, et al., 2004) is explained mostly in reference of self-efficacy. In Bandura's (1997) self-efficacy theory, self-efficacy describes "beliefs in one's capabilities to organize and executive the courses of action required to produce given attainments" (p.3). Self-efficacy also involves a generative capability to organize cognitive, social, and behavioral skills into integrated courses of action (Bandura, 1982). Furthermore, Stajkovic and Luthans (1998b) use the term confidence in their definition of self-efficacy as individual's convictions or confidence that the individual is capable to mobilize his or her motivation, cognition, and courses of action required to perform a specific task successfully. Self-efficacy of those definitions is commonly recognized in relation to a specific task or domain, so it refers to specific self-efficacy. In terms of a more generalized sense of self-efficacy, Eden and Zuk (1995) define general self-efficacy as an overall estimate of individual about his or her

capability to perform successfully in achievement situations. General self-efficacy entails a global sense of confidence in an individual's ability to effectively cope with demanding or difficult situations broadly (Luthans, Zhu, & Avolio, 2006) and a wide variety of stressors (Schwarzer & Born, 1997). General self-efficacy thereby tends to be applicable to explain a larger range of human behaviors and activities for a less specific context (Luszczynska, Gutierrez-Dona, & Schwarzer, 2005). This study concerns employee confidence about his or her job in organizations which is not limited to a specific or particular task; therefore, general self-efficacy is thought to be more appropriate in the present study.

This study aims to examine how learning styles are associated with employee confidence in business contexts. Self-efficacy makes a distinction to how individuals feel, think, and act (Luszczynska, et al., 2005). Individuals with high self-efficacy may have a positive effect on performance effort by using skills for the effort required for optimal performance (Bandura, 1982). They take and perform more challenging tasks and establish higher goals and persist with them (Schwarzer & Born, 1997). The meta-analysis made by Judge and Bono (2001) supports a positive relationship between general self-efficacy and job performance. In order to perform jobs, people need to take action and require persevering in the jobs to complete. Schwarzer and Born (1997) agree that people can conduct a more active and self-determined course of life if they believe in being capable to lead to an event. In other words, high efficacy people take an action for tasks, make more effort, and continue trying to successfully achieve the task than those with low efficacy (Schwarzer & Born, 1997; Luszczynska, et al., 2005; Stajkovic & Luthans, 1998). The above-mentioned discussion is thought to involve active experimentation (AE) and its derived traits based on learning style models.

As described in the section of Kolb's (1984) learning theory, four learning modes represent concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). The AE mode of learning that is dialectically opposite to the RO requires individuals to take an action to learn by doing (Kolb, 1984). It is also characterized as being showing ability to get things done, taking risks, and influencing others and events through actions (Kolb, 1984, 1999). In addition, individual preference for the AE mode rather than the RO mode develops a behavioral competency set of acting, initiative, and goal setting skills (Mainemelis, et al., 2002). Because high general self-efficacy is related to a trait of more action and performance orientation with a choice of challenging tasks than low self-efficacy, it can be inferred that individuals who show their learning preference for the AE mode are likely to have a higher confidence in jobs than those with the learning preference of RO mode. Accordingly, the first hypothesis will be generated as follows.

Hypothesis 1: the greater employees learn by active experimentation (AE) rather than reflective observation (RO), the greater their confidence will be exhibited.

Confidence development relies on high cognitive effort (Bandura, 1982, 1997). In applying Salomon's (1984) research findings about a relationship between learning efficacy and cognitive effort, Bandura (1982, 1997) pointed out that some self-doubt about individual's efficacy is essential to create his or her motivation to acquire the knowledge and skills necessary to perform successfully. To rebuild confidence in a development process from a state of self-doubt, individuals would need to make much effort to restructure themselves by deeply thinking about what knowledge and skills are actually needed for their effectiveness. Before taking actions along with applying the knowledge and skills to demanding situations, individuals must initially organize their courses of action in thought (Bandura, 1995). Because such strong cognitive processing of information for confidence development is therefore

needed for self-efficacy development (Luthans, et al., 2004; Stajkovic & Luthans, 1998b), individuals would require using logically analyzing ideas and acting on an intellectual understanding of a situation facing them. These cognitive forms involve the learning mode of abstract conceptualization (AC) which is learning by thinking (Kolb, 1984, 1999).

Accordingly, the second hypothesis will be produced as follows:

Hypothesis 2: the greater employees learn by abstract conceptualization (AC) rather than concrete experience (CE), the greater their confidence will be exhibited.

Methods

Sample and Sampling Procedures

A Japanese MNC agreed to participate in this study. The Japanese MNC is the one of the successful makers that produces and markets business machines for Japanese and Asian Pacific regions. A total number of its employees are approximate 45,000 around the world. The data for analysis of learning styles and confidence were collected from their employees working in its Tokyo office whose main business responsibility is to provide office equipment products and maintenance services for organizations operating in Japan.

The sample for this study was composed of 201 employees from this MNC. The majority of Japanese participants were male with the average age of 37 years old. An almost half of them were responsible for sales, while the other half included technical and operational duties. The average tenure of the participants working for this firm was 190 months which are almost equivalent to 16 years. The largest group of organizational hierarchical positions was employed at non-management followed by junior, middle, and senior managers in order. Table 1 illustrates the demographic characteristics of the Japanese participates.

Insert Table 1 about here

Survey packets were managed by the Human Resources (HR) manager of the Japanese MNC in Tokyo, and given to 240 employees as potential participants through their internal mailing system. Of them, 201 were completed questionnaires usable for the data analysis, making an overall response rate of 83.8 %. The HR manager was so cooperative for this study to send a reminder e-mail to the potential participants a few times. This activity would contribute to an increase of this high ratio.

Measures

Learning styles inventory

In order to analyze individual learning styles, the present study used the Learning Style Inventory (LSI) which is designed to examine how people learn based on Kolb's (1984) learning style model (Kolb, 1999). The methodology applied in the LSI adopts a forced-choice method, reflecting the dialectical aspect of human learning (Kolb, 1984; Hickcox, 1991) and the effective control of a way to respond to the instrument (Saville & Wilson, 1991). The third version of the LSI employed in this study includes the psychometrics modifications suggested by Veres, Sims, and Locklear (1991), showing the high test-retest reliability of the earlier version of the LSI. The improved validity and reliability of the LSI third version was confirmed by the LSI measurement study conducted by Kayes (2005).

The LSI is composed of 12 questions. Each question asks a respondent to complete a sentence by making orders among four options according to their preferences. These four options represent the four learning modes. For example, the first sentence in the LSI begins with "When I learn," and the four choices to be prioritized include "I like to deal with my feelings," "I like to think about ideas," "I like to be doing things," and "I like to watch and listen." These four items show the CE mode, the AC mode, the AE mode, and the RO mode of learning respectively. The sum of the numbers ranging from "4 = you learn most" to "1 = you

learn least” for each of the four modes describes the extent to which each respondent depends on the four different learning modes. The total scores, with one sum subtracted from any other in the same dialectical dimension (i.e., the value of AC–CE or that of AE–RO), represent the relative preference of each respondent to one or the other dialectical mode. The greater value of AC-CE describes the more thinking and less feeling learning orientation, while its smaller value indicates the more feeling and less thinking one. Similarly, the greater value of AE-RO represents the more acting and less reflecting, whereas its smaller value shows the more reflecting and less acting. The combination of these two scores shows the learning style preference.

Job confidence scale

This study needs to examine the degree of employee confidence in jobs in organizations, which is not constrained to a specific or particularized task but is characterized as a more generalized form in term of confidence in work. Although several scales of general self-efficacy have been designed and used (see Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982; Shwarzer & Born, 1997; Scholz, U., Guitierrez-Dona, Sud, & Schwarzer, 2002), this study developed a job confidence scale that focuses on confidence in terms of work settings. This scale consists of four items: I have confidence in my job; I am so confident in myself that I will complete my current job; I don't have any confidence in my present work (a reversed item); and I am fairly confident of doing my job thoroughly. The scale uses a 5-point Likert method of degrees from 1 = strongly disagree to 5 = strongly agree.

To verify the validity and reliability of the job confidence scale for this study, an exploratory factor analysis (EFA) was first conducted. The principal component EFA method was used on the data from the sample of 201 participants who completed the survey.

Evaluation of the Eigen values and scree plot suggested that there existed only one primary

factor that was dominant (i.e., Eigen values greater than one). Those 4 items accounted for 77.4% of the total variance. Then, in order to confirm the one factor which was identified from the EFA, a confirmatory factor analysis (CFA) was conducted using the same sample. The CFA results indicated that four items loaded on the factor of the confidence and all loadings were statistically significant ($p < 0.05$) with standardized values ranging from 0.55 to 0.94. In addition, the results indicated acceptable structure validity ($\chi^2 = 3.565$, $p > 0.05$; $df = 2$; CFI = 0.99; NNFI = 0.99; GFI = 0.99; RMSEA = 0.063; and RMR = 0.011). Those four items were also reliable (Cronbach alpha = 0.89). Table 2 illustrates the job confidence items with their factor loadings from the EFA and CFA.

Insert Table 2 about here

Demographic questions

Research participants were asked about age (year), gender (male = 1, female = 0), tenures in this firm (months), job functions (sale = 1, technical and operational jobs = 0), and hierarchical positions in this firm. Those socio-demographic characteristics were used as control variables to examine how learning styles have an effect on confidence in their jobs.

Translation procedures

Original survey questionnaires used in this study were English. Obviously, questionnaire formats in Japanese would make Japanese participants understand and answer questions easily, so the Learning Style Inventory (LSI) and the job confidence scale needed to be translated into Japanese. The Japanese version of the LSI that had been used in prior cross-cultural studies (see Yamazaki and Kayes, 2007, 2010) was employed for this study. The job confidence scale was translated into Japanese according to the translation procedures for cross-cultural research suggested by Brislin Lonner, and Thorndike (1973). The method

refers to comparisons between the meanings of the original English and those of the translated Japanese versions as well as between the original and back-translated versions.

Results

Table 3 shows the descriptive statistics and correlations among the eight key variables in this study. Each demographic variable had a significant correlation with the other variables, excepting the relationship between job functions and positions. This result may suggest that age and gender tend to be influential demographics on tenure, job functions, and hierarchical positions in Japanese firms, particularly this Japanese MNC. Although this MNC has adopted a meritocracy system based on individual performance, there might be implicit social norms embedded on Japanese culture where the value of male and seniority remain dominated in workplaces. Further, all of the five demographic characteristics were significantly correlated with job confidence variable ($p < 0.01$). The results imply that older male employees who are placed at a higher position with a longer tenure in the firm are likely to have more confidence in their jobs. Additionally, the mean scores of learning style variables: AC-CE = -6.00 and AE-RO = 3.65, indicated that a whole group of Japanese employees that participated in this study is categorized as a diverging learning style that use more feeling and reflection in their learning processes.

Insert Table 3 about here

Hypothesis testing

The first hypothesis predicted that individuals who prefer to learn by acting rather than reflecting show more confidence in their jobs, while the second hypothesis stated that individuals who prefer to learn by thinking rather than feeling exhibit more confidence in their jobs. The following three statistical analyses were used to test these hypotheses.

First, results of correlation analysis showed in Table 3 described a significant relationship between AE-RO and confidence ($r = 0.22, p < 0.01$). It is suggested that the relative preference for acting more than reflecting is related to the greater confidence in jobs. However, the correlation analysis results revealed an insignificant relationship between AC-CE and confidence ($r = -0.06, p > 0.05$), indicating that the learning dimension of thinking vs. feeling has no relationship with confidence change.

Second, in order to conduct a t-test, this study created groups of learning styles according to two learning dimensions (one learning dimension of acting vs. reflecting; the other learning dimension of thinking vs. feeling). The first group that consists of accommodating and converging learning styles indicates more active learning orientation, whereas the second group including diverging and assimilating style of learning represents more reflective learning preference. As shown in Table 4, results of the t-test showed a significant difference between these two groups ($t = 2.23, p < 0.05$), explaining that the first group of more active learning styles has more confidence in their job than the second group of more reflecting one. The result suggests that employees who are classified into accommodating or converging learning style have more job confidence than those with diverging and assimilating styles of learning. Moreover, the third group that is composed of converging and assimilating learning styles represents more thinking orientation learning. In contrast, the fourth group comprising of accommodating and diverging learning styles involves more feeling orientation. Similarly, the t-test results revealed no statistical significance between the third and the fourth groups with regard to the level of job confidence ($t = -1.06, p > 0.05$).

Third, this study conducted a regression analysis that examines the effect of two learning style variables on job confidence, controlling the five socio-demographic variables.

As illustrated in Table 5, Model 1 is composed of all of the five control variables, while Model 2 incorporates two learning variables of AC-CE and AE-RO into Model 1. Results in Model 1 indicated that although the model itself received statistical significance (*adjusted R*² = 0.11, *F* = 5.67, *p* < 0.01), all betas of control variables were insignificant (*p* > 0.05). Results in Model 2 showed that Model 2 was better than Model 1 because the incremental *R*² change was 0.04 (*F* change = 4.32, *p* < 0.05). Furthermore, the results revealed that the beta of AE-RO was significant (*p* < 0.01) while that of AC-CE was insignificant (*p* > 0.05). The results suggest that employees who prefer to learn by acting more than reflecting increase job confidence. However, there was no effect of learning style variables in the dimension of thinking and feeling on a level of confidence in jobs.

All of the above three statistical analyses were consistent in their results indicating that the more individuals exhibited their preference for acting rather than reflecting, the greater they showed confidence with their jobs, while the no relationship between the other learning dimension of thinking vs. feeling and job confidence existed. Therefore, Hypothesis 1 received acceptance but Hypothesis 2 was rejected. Tables 4 and 5 summarized the results of the t-test and the regression analysis.

Insert Tables 4 & 5 about here

Discussion

Result review

This study substantiated the effect of the learning mode of active experimentation (AE) on job confidence in organizational contexts. Its result is congruent with the research by Chou and Wand (2000) in terms of an academic context in which elementary students learning through the AE had more self-efficacy in computer trainings. It will be possible to draw a conclusion a strong connection between the active mode of learning and confidence.

However, the effect of abstract conceptualization (AC) on confidence remains questionable. The study by Chou and Wang (2000) empirically showed the significant relationship between those two variables, so this study result is inconsistent with their findings. Close examination of the results of this study showed that a negative correlation emerged with regard to AC-CE and confidence, as depicted in Table 3. Additionally, the feeling oriented group of diverging and accommodating styles of learning presented a slightly higher confidence level than the thinking oriented group of assimilating and converging learning styles. Although those statistical tests resulted in insignificance, the small negative effect of thinking, which is slightly positive influence of feeling, on confidence building might appear in this study. One possible explanation about this result concerns the trait of the research context where the feeling mode of learning prevails at the business environment used for this study (the mean score of AC-CE = -6.00 shown in Table 3). A tendency to use strong concrete experience (CE) of study participants' approach to learn might offset the influence of thinking learning mode when they develop confidence. How people feel, think, and act pertains to self-efficacy (Luszczynska, et al., 2005), which indicates a complex and multifaceted feature, so the tendency dominantly using the CE mode might affect somehow the development in self-efficacy in part of its feeling portion. This explanation is, however, speculative. Thus, a promising study is needed to compare the feeling oriented learning environment and the thinking one with regard to how the thinking mode of learning affects confidence building.

Theoretical implications

The present study provided a new perspective to make a connection between learning styles and job confidence, each of which has sound theoretical foundation. Learning style model used in this study is based on experiential learning theory (Kolb, 1984; Kolb & Fry,

1975), whereas confidence as self-efficacy is established on self-efficacy theory with social learning theory (Bandura, 1982, 1997; Stajkovic & Luthans, 1998b). As for a contribution to the experiential learning theory, the study has given to a trait derived from active experimentation (AE) learning mode, indicating confidence in jobs. Kolb (1984) discussed that people with more active experimentation tend to have more successful opportunities. This argument would be supported by the result of this study because of an increase in confidence by the AE mode rather than the RO mode, which results in the enhancement of job performance.

The result of this study will also contribute to the literature of self-efficacy. Confidence building is not a simple process but involves multiple factors described in the section of introduction. Because this study showed a strong connection between acting oriented learning and confidence, an individual trait of learning ways may be thought to work for confidence development. In order to generalize this perspective, accumulative research in other contexts will be needed. Another contribution in the self-efficacy literature may be linked with cross-national studies on self-efficacy. Schwarzer and Born (1997) conducted general self-efficacy among 13 countries and raised a question of what makes difference in self-efficacy levels among those countries. Learning style differences in countries in terms of the learning dimension of acting vs. reflecting may be ascribed the variation of their study results to. In their study, Japanese participants showed the lowest self-efficacy level because there is a possibility about the relatively strong reflective learning of Japanese in compared with other countries' people (see Yamazaki, 2005; Yamazaki & Kayes, 2007). In order to confirm this view, cross-national studies between learning styles and confidence will be important as promising research.

Practical Implications

Results of this study will propose practical implications for HR managers in organizations. They provide critical information about which employees are likely to enhance confidence in their jobs that affects job performance. Because more active learners tend to have more confidence, HR managers will be able to control their confidence by knowing their preference to learning. If HR managers identify employees who learn more through reflection, they may need to suggest that these employees take more action and initiative in their workplaces, though this suggestion may depend on job characteristics of employees. HR managers may also need to offer those employees corporate trainings that include the essence of action learning or interactive orientation in classes. This implication, however, does not mean that reflective employees unlearn the learning mode of reflection; rather, they need to develop in an undeveloped learning mode of action. Once they have acquired and developed active learning capability, they would be more adaptive to various environmental situations and above all they would develop confidence.

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Table 1. Demographic characteristics of Japanese employees ($N = 201$).

	<i>N</i>	%		mean	s.d.
Gender			Age		
Male	173	86.1%	(years)	37.43	9.96
Female	28	13.9%			
Job functions			Tenure at this firm		
Sale	93	46.3%	(months)	190.21	136.30
Technical and operation	108	53.7%			
Hierarchical positions					
Senior management	10	5.0%			
Middle management	29	14.4%			
Junior management	32	15.9%			
Non-management	130	64.7%			

Table 2. Results of EFA and CFA about job confidence.

Item	EFA	CFA
I have confidence in my job.	0.94	0.94
I am so confident in myself that I will complete my current task.	0.95	0.94
<u>I don't</u> have any confidence in my present work.	0.68	0.55
I am fairly confident of doing my job thoroughly.	0.93	0.91

Note. Extraction method: Principal component analysis. The CFA goodness of fit indices were $\chi^2 = 3.565$, $p > .05$; $df = 2$; CFI = .99; NNFI = .99; GFI = .99; RMSEA = .063, and RMR = .011.

Table 3. The correlation matrix and descriptive statistics for all key variables of Japanese employees.

Variables	mean	s.d.	1	2	3	4	5	6	7
1. Age	37.43	9.66							
2. Gender	0.86	0.35	0.40 **						
3. Tenure (months)	190.21	136.30	0.91 **	0.38 **					
4. Job function	0.46	0.50	-0.35 **	-0.29 **	-0.39 **				
5. Hierarchical positions	1.60	0.91	0.78 **	0.31 **	0.74 **	-0.13			
6. AC-CE	-6.00	14.21	0.00	-0.02	-0.02	0.06	-0.10		
7. AE-RO	3.65	13.21	0.06	0.00	0.07	-0.01	0.12 †	-0.40 **	
8. Confidence	12.69	3.13	0.31 **	0.23 **	0.32 **	-0.19 **	0.26 **	-0.06	0.22 **

Note. Gender (male = 1; female = 0); Job function (sale = 1; others = 0); Hierarchical positions (senior = 4, middle = 3; junior = 2; non-management = 1).

$N = 201$; ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$. The greater number of AC-CE describes the more thinking orientation, while its smaller number shows the more feeling one. The greater number of AE-RO means the more acting orientation, while the its smaller number indicates the more reflecting one.

Table 4. Results of t-test about confidence among learning styles.

Learning style dimensions	<i>N</i>	Confidence		<i>t</i> values
		mean	s.d.	
Converging & Accommodating (more acting)	102	13.17	0.31	2.23*
Diverging & Assimilating (more reflecting)	99	12.19	0.31	
Converging & Assimilating (more thinking)	48	12.27	3.40	-1.06
Diverging & Accommodating (more feeling)	153	12.82	3.04	

Note. * $p < 0.05$

Table 5. Results of regression analysis about the effect of learning styles on confidence.

	Confidence	
	Model 1 β	Model 2 β
Control variables		
Age	-0.01	0.01
Gender	0.11	0.12
Tenure	0.17	0.15
Job function	-0.09	-0.09
Hierarchical positions	0.14	0.11
Learning variables		
AC-CE		0.05
AE-RO		0.21**
<i>F</i> values	5.67**	5.42**
Adjusted R^2	0.11	0.16
R^2 change		0.04
F change		4.32*

Note. Gender (male = 1; female = 0); Job function (sale = 1; others = 0); Hierarchical positions (senior = 4, middle = 3; junior = 2; non-management = 1); ** $p < 0.01$, * $p < 0.05$.

Figure 1. Kolb's learning style model.

