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Abstract

This study aims to understand cross-cultural differences in managers' learning styles by comparing Japanese managers with US managers. For this aim, the present research empirically examined learning styles of 254 participants in total: 128 subjects of Japanese managers and 126 subjects of US managers. There are three findings that were obtained from this study. First, Japanese managers were more concrete and reflective than American managers in general. But this general learning tendency may be affected in accordance with types of business that managers engage with. Second, Japanese managers were more heterogeneous in learning styles, while American managers showed more homogeneity of learning styles. Third, in the aspect of balance and specialization on learning styles, American managers demonstrated more balanced learning abilities than did Japanese managers. These findings suggest that group oriented countries like Japan possess symmetry on collective learning styles and asymmetry on individual learning styles; and in contrast, individual oriented countries like the US hold asymmetry on collective learning styles and symmetry on individual learning styles.

Introduction

There is no doubt on the magnitude of managers' learning in organizations. It has a great effect upon the acquisition of their managerial knowledge and skills (McCall, et al, 1988; Streitzer, et al, 1997), promotes their career development (Kovach, 1989), and plays a crucial role in organizational learning (Kim, 1993). Products derived from managers' learning, especially appear in individual performance, depend upon how managers learn: that is learning styles (Kolb, 1984). Drucker (1999) pointed out that it is important to know how to learn for the management of one's own growth and development in organizations. While styles of managers' learning can see differences individually in accordance with personalities, academic backgrounds, and professional career choices (Kolb, 1984), they also seem to be formed under the influence of managers' own culture of each country.

Several researches support a significant connection between learning styles and culture for a few decades. Hofstede (1997), for example, pointed out that peoples' ways of learning are affected by a country's culture through their socialization processes. As another, Pratt (1991) discussed that learning styles tend to vary across cultures by comparing between Chinese and Western cultures. De Vita (2001) also suggests that cultural effects upon the development of learning styles exist because culture forms individual perception, cognition, and behavior. More recently, Yamazaki (2005) showed that six cultural dimensions can be conceptually linked with learning styles that are encompassed into Kolb's (1984) learning model. Although a number of comparative studies provided supportive, empirical evidences of how learning styles vary with

cultures, very little research has been conducted in the context of managers across cultures except for only two studies.

Hayes and Allinson (1989) initially compared managers' learning styles between UK, India, and East Africa. But their research used relatively small sample size, especially regarding 40 Indian managers and 28 East African managers, both of whom participated into the project of MBA program in UK. Secondly, Yamazaki and Kayes (2007) analyzed learning style differences between Japanese expatriates and their American counterpart managers. Their main focus was, however, on Japanese expatriates' context, rather than on Japanese home learning environments where to understand learning styles of Japanese managers in their home country. These two studies might be limited to methodologies of the former study and different aims and focuses of the latter research.

Additionally, by reviewing the effective composition of learning styles in teams, Adams et al. (2005) found that team performance rests upon two aspects of learning style characteristics about individual members of team. One aspect represents to an extent of homogeneous and heterogeneous learning styles in groups and the other involves an extent of balanced and specialized learning styles in there. Their study has provided a useful insight as to learning style variables lying in these two learning aspects to be investigated so as to see differences in learning style constitution of a more collective entity like a country.

The present study has research questions in which to concentrate on two nations of Japan and the United States as follows:

- How do Japanese managers differ from American managers in general?
- How do Japanese managers differ from American managers in a learning aspect of homogeneity and heterogeneity?
- How do Japanese managers differ from American managers in a learning aspect of balance and specialization?

Research context

This study chose Japan and the United States as a research context by the following two reasons. First, the world economic impact generated by US and Japanese MNCs has been continually enormous; thus, the examination of the two nations is worthwhile. Global Fortune 500 reports that US and Japanese MNCs created \$7,338 and \$2,407 billion revenue in 2006 respectively, each of which revenues placed US and Japan as the highest and the 2nd highest ranks by country (Demos, 2007).

Second, on the wave of acceleration of globalization, managers of many countries increasingly have a chance to encounter Japan or US cultures in international business environments. Because culture has a great effect upon affect, behavior, and cognitions when people encounter different cultures (Ward, et al., 2001), it is beneficial to investigate both Japanese and US managers. Additionally, tremendous cultural differences exist between the two nations, and are presented in several cultural typologies such as: high vs. low context (Hall, 1976), interdependent-self vs. independent-self (Markus & Kitayama, 1991), or strong uncertainty avoidance vs. weak uncertainty avoidance (Hofstede, 1997). The former represents Japan, while the latter refers to the US. As these cultural typologies are deeply linked with learning styles

(Yamazaki, 2005), these two nations are potential, useful candidates of study groups that may provide unique characteristics of how managers learn across cultures.

This study mainly employs Kolb's experiential learning theory (1976, 1984; Kolb & Fry, 1975) for the foundation of conceptual framework. His theory remains one of the most pervading theories of how managers learn from experience (Kayes, 2002). In the task of investigating cross-cultural differences in managers' learning styles, Kolb's learning model has been applied broadly in the fields of cross-cultural and international studies (Yamazaki, 2005). In addition, because there are a critical linkage between individual learning and organizational learning (Kim, 1993), the present study also applies Nonaka's theory about organizational knowledge creation (1994: Nonaka & Takeuchi, 1995) that explains about how organizations learn to generate new knowledge. Nonaka's study shows a difference in organizational knowledge creation between Japan and the West.

Experiential learning theory and learning styles

By assimilating studies of Dewey, Lewin, Piaget, James, and Freire, Kolb (1984) developed experiential learning theory. A central theme of this theory involves the magnitude of concrete human experience that becomes a source of individual learning through four fundamental learning modes: concrete experience = feeling (CE), reflective observation = reflecting (RO), abstract conceptualization = thinking (AC) and active experimentation = acting (AE) (Kolb, 1984). Kolb's learning model describes two dialectical relationships among four learning modes: that is, one dimension of AC (thinking) and CE (feeling) modes and the other dimension of AE (acting) and RO

(reflecting) modes. When people learn, they are required to resolve such dialectics in the experiential learning cycle that consists of the four learning modes, producing individual knowledge. Such a dynamic relation between apprehension and comprehension turns to become the key of individual knowledge creation (Kolb, 1984).

A combination of two learning modes from each of the two dialectical learning dimensions: AC (thinking) vs. CE (feeling) modes and AE (acting) vs. RO (reflecting) modes, produces four basic forms of learning styles (Kolb, 1984; Kolb & Fry, 1975). The diverging learning style accentuates CE (feeling) and RO (reflecting) modes of learning. The strong abilities of this learning style are imagination and appreciation of values and meanings captured by senses or feelings. If a person learns through this style, he or she can intuitively grasp an overall picture based on various information and views built upon concrete situations. In addition, he or she is good at working with people in a harmonious manner. In contrast, the converging learning style specializes in AC (thinking) and AE (acting) modes. A person who prefers to use this style can possess the following abilities: individual decision making, practical application of idea, managing tasks rationally, and focusing on issues and their practical solutions.

The assimilating learning style particularly develops AC (thinking) and RO (reflecting) modes. Its strength enables a person with this learning style to gather and organize much abstract information and then to make a conceptual model or theory. He or she tends to have a main concern about theories that pertain to logical soundness and preciseness rather than the practical application of theories. Conversely, the accommodating learning style specializes in CE (feeling) and AE (acting) modes. The

great abilities of this style involve taking actions and initiatives in an immediate and contextual environment along with hands-on experiences. A person who demonstrates his or her preference for this style can achieve tasks and plans by a trial-and-error way. He or she can also build new relationships with others as well as take a leadership role actively.

Experiential learning theory suggests that the aforementioned four learning styles are specialized with two learning modes and limited ways of individual learning (Mainemelis et al., 2002). Kolb's theory argues that people adaptively develop undeveloped learning modes in surrounding environments demanding such undeveloped modes. As a result, their learning styles move from the specialization of two learning modes towards the integration of three or four modes; and thus their learning styles become more adaptive flexible to environments (Mainemelis et al., 2002).

If a person developed, for example, undeveloped AC (thinking) modes when the diverging learning style is his or her preferred way of learning, this person would come to master CE (feeling), RO (reflecting) and even AC (thinking) learning modes. Because there is a dialectical tension between AC and CE modes, the person needs to resolve such a tension. In the past, for the resolution, this person hypothetically tended to use the feeling mode more often due to his or her diverging learning style, but he or she is assumed to become more flexibly adaptive by integrating AC (thinking) and CE (feeling) modes into a balanced learning way. Similarly, if the same person further developed AE (acting) modes as an undeveloped learning mode, he or she would come to additionally master the AE mode that is dialectically opposite to the reflecting mode. As a

consequence, this person would be able to keep a balanced learning style between the dimension of AE (acting) and RO (reflecting) modes as integrated learning ways. This integration of learning modes thereby occurs in two different dialectical learning dimensions: AC (thinking) vs. CE (feeling) modes and AE (acting) vs. RO (reflecting) modes. Such integration represents a more sophisticated learning style by which to become more flexibly adaptive to multiple situations by balancing in the two dialectical learning dimensions (Mainemelis et al., 2002). In this respect, the more balanced learning styles correspond to the more integrated learning orientation, while the less balanced ones refer to the more specialized learning direction.

Organizational knowledge creation

Nonaka (1994) conceptualized a process of organizational knowledge creation in which organizations produce tacit and explicit knowledge through four different modes of knowledge conversion. Tacit knowledge that is characterized as personal quality is hard to formalize and communicate with others, and can be acquired through hands-on experience rather than languages and thinking process (Nonaka, 1994). It includes subjective insights, intuitions, and hunches (Nonaka and Takeuchi, 1995). In contrast, explicit knowledge is expressed in words and numbers, can be easily transmitted and communicated with others through systematic languages, and is also objective and described in records of hard data that exemplify reports, books, achieves, and computer databases (Nonaka, 1994; Nonaka and Takeuchi, 1995). Knowledge conversion, which creates new knowledge, occurs at four different modes by interaction between tacit and explicit knowledge.

Four modes of knowledge conversion include socialization, combination, internalization, and externalization according to combination between two kinds of knowledge or within each area of knowledge (Nonaka, 1994; Nonaka and Takeuchi, 1995). Socialization relies upon direct experiences of individuals who share such experiences without languages, including observation, imitation, and practice. Combination takes places mostly with using words and numbers which persons receive and reconfigure into new explicit knowledge. Externalization relies upon not only the shapes of metaphors, analogies, concepts, and hypotheses, but also individual or collectively reflection. Internalization is deeply associated to learning by doing. Figure 1 depicts a relationship between Kolb's model and Nonaka's model.

Insert Figure 1 about here

Nonaka's and Kolb's models use its own variables and aims to explain about organizational learning and individual learning respectively. Variables originated from their two models may hold some similarities but remain distinct. There seem to be several conceptual similarities between them. First, these two models emphasize immediate human experience that plays an important role in learning. Second, they employ two different kinds of knowledge described differently but those two kinds are very similar; that is, apprehensive knowledge described in Kolb's learning model corresponds to tacit knowledge used in Nonaka's theory, whereas comprehensive knowledge is similar to explicit knowledge. Third, Kolb's model illustrates that four

fundamental learning modes making two dialectical relations produce knowledge through transformation between two kinds of knowledge. Similarly, Nonaka's model concentrates knowledge conversion that is a central function of generating new knowledge, each mode of which encompasses human learning abilities or activities in organizational life. For example, the RO (reflecting) mode in Kolb's model is analogous to externalization in Nonaka's theory, and the AE (acting) mode is similar to internalization.

Hypotheses

Japan is characterized as a high-context culture (Hall, 1976) that has a social norm requiring its members to determine the meaning of messages carried in a communication pattern by relying upon surrounding situations and non-verbal clues. In this communication approach, Japanese tend to use feeling and sensing to grasp proximate environments. In contrast, the US is embedded to a culture of low context (Hall, 1976) where overt messages are critical to understand their meanings. Under this communication paradigm, its members seem to be required to use explicit information and to explain clearly in a logical and analytical form. Overall, Japan holds the intuitive mode (Nugent, 1981) and the interdependence with people (Doi, 1979), while US traditionally values the rational mode of thought (Nugent, 1981; Hayashi, 1999).

In light of the other learning dimension between AE (acting) and RO (reflecting), Japan is seen as a country that is embedded to cultural values of caution, deliberation and silence (Linowes, 1993), and the gold of silence (Hayashi, 1999). Conversely, the US values the self-actualization (Markus & Kitayama, 1991) that requires its members to act. Achievement in their work place serves as a strong motivational element, and it

encourages those members to take actions in either familiar or unfamiliar circumstances for their success (Hofstede, 1997). Consequently, the first hypothesis will be created as follows:

Hypothesis 1: Japanese managers will rely on more CE (feeling) and more RO (reflecting) than US managers.

The next two hypotheses concern one aspect of homogeneous and heterogeneous learning styles and the other aspect of balanced and specialized learning styles in the field of business organizations, both of which are thought to differentiate among countries.

From perspectives of experiential learning theory in teams, Adams et al. (2005) cited the study of Wolfe (1977) about the effect of learning styles on team performance, showing that the one group comprising heterogeneous learning styles performed better than the four groups consisting of homogeneous learning styles. Furthermore, the group that was made up of balanced learning styles of its members demonstrated better performance than the groups composed of similar learning styles (Kayes, 2001). The effective learning style composition in groups can be seen in two different patterns. One effective pattern refers to a group comprising heterogeneous learning styles, while the other is indicative of a group consisting balanced learning styles. Although very few studies have been done about the effect of learning styles derived from these two aspects based on countries, this notion resulting from the team investigation seems possible to extend to be applied to a more macro level of environmental system like a country. A theory of organizational knowledge creation (Nonaka, 1994; Nonaka & Takeuchi, 1995)

is thought to provide a useful insight to distinguish between countries.

Nonaka and Takeuchi (1995) discussed global organizational knowledge creation and pointed out that Japanese corporations tend to use groups so as to convert tacit knowledge into explicit knowledge, while Western corporations tend to use individual managers to do so. It seems that the group in Japanese corporations needs diverse managers who have different learning styles in order to play an important role as a function of knowledge creation. If such group consisted of managers holding biased learning styles, Japanese corporations would not be able to create organizational knowledge effectively through their group activities, especially in the mode of externalization from tacit knowledge to explicit knowledge. To meet a requirement of that effective condition in groups, Japanese managers seem to show heterogeneous learning styles so that their groups can contain diverse members that hold individual, different learning styles that are specialized in a certain learning mode.

With regard to US corporations, US managers are rather individually required to conduct knowledge conversion between tacit and explicit. Obviously, two modes of knowledge conversion: externalization and internalization impose individual managers on the two learning modes of RO (reflecting) and AE (acting). In addition, in order to make new knowledge effectively, individuals inevitably need to get tacit knowledge as a starting point of organizational knowledge creation (Nonaka, 1994), the ability of which entails the learning mode of CE (feeling). Similarly, individuals have to clearly express of the meaning derived from the tacit knowledge obtained from experience, whose ability involves the mode of AC (thinking). From these two notions, US managers seem to have

all four learning modes if they perform effectively for their organizational knowledge creation. The above discussion results in the following two hypotheses.

Hypothesis 2: Japanese managers will be more heterogeneous and less homogeneous in learning styles than American managers.

Hypothesis 3: US managers will be more balanced and less specialized in learning styles than Japanese managers.

Methods

Sample

In terms of the examination of Japanese learning styles, two Japanese manufacturers participated in this study. The one corporation, conventionally named 'Corp-A' in this study, is a gigantic manufacturer of electronic household appliances, has several plants and branches domestically and globally. The author obtained permission from the corporation to conduct research at one plant of them. The other corporation, called 'Corp-B', is a medium size manufacturer based on high advanced engineering and innovative technologies by which to make machines mainly to produce screens for various products and to market them worldwide.

Corp-A received 330 survey packets in Japanese and gave back to me 282 completed questionnaires. Eighty seven participants were all male managers including junior level management with an average age of 44.6 years old. They had worked for approximate 25 years with the company. Corp-B received 190 survey packets and sent back 169 completed questionnaires. Forty two participants were occupied at management positions and all male with an average age of 46.9 years old. They had worked for the

company for 10.2 years. In overall, the total number of sample for the study 1 was 128 managers whose average ages were 45.4 year old. All of the Japanese managers were male with the average time of 20.3 years worked for their Japanese corporations.

Regarding US sample, this study made use of a project that investigated 126 American managers working for six Japanese based multinational corporations in the US. For the research project, the author provided 165 American managers with a survey packet in English by means of Japanese managers assigned as survey administrators in the Japanese MNCs. Questionnaires returned by 126 American participants were complete and usable for the present study. All American subjects worked for Japanese MNC manufacturers in the Mid-western US, with an average age of 39.0. They had worked for their current Japanese MNCs for approximate 5.5 years. Ninety three managers were male (74%), while thirty three were female (26%).

Measures

This study used the third version of the Learning Style Inventory (LSI) invented by Kolb (1999) in order to examine differences in learning styles of Japanese managers and American managers. This inventory applied a forced-choice method by which to investigate a learning preference towards four learning modes: CE (feeling), RO (reflecting), AC (thinking), and AE (acting). The LSI consists of 12 questions, asking persons to rank four choices that represent the four learning modes. For instance, a sample question in the LSI is: “When I learn,” and the four options to be ranked are: “I am happy; I am careful; I am fast; and I am logical.” These four items reflect, in tern, the CE mode, the RO mode, the AE mode, and the AC mode. The sum of a number ranked

from '4 = you learn most' to '1 = you learn least' on each four modes describes the degree of how much persons depends on each of such four different modes of learning. The scores that are subtracted from one sum to the other in the same dialectical dimension: that is, the value of AC – CE or that of AE – RO, represents a relative preference of persons between its two dialectical modes. A combination of examined these two scores determines which learning style persons prefer to use.

The LSI is also designed to measure to what extent a person tends to balance two learning modes within each of the two dialectical learning dimensions: that is, a degree of to a specialization and integration aspect (Mainemelis et al., 2002). The absolute value of the scores subtracted from one sum to the other in the same dialectical dimension (i.e., $|AC-CE|$ or $|AE-RO|$) was modified for population variation and was indicative of such a degree of balanced learning orientation (Mainemelis et al., 2002). The absolute value that comes closer to zero represents more balanced, integrated, learning orientation, while the absolute value that increases away from zero describes less balanced and more specialized learning orientation.

Kolb's learning model and the LSI of its instrument have received much attention from interdisciplinary areas (Kolb, et al., 2001). Indeed, more than 2200 researches, referred articles, and dissertations presented in broad scopes relevant to learning and education conducted on his theory and the LSI from 1971 to 2005 (Kolb and Kolb, 2005). The third version of the LSI employed in this study reflects the changes in psychometrics suggested by the study of Veres et al. (1991) showing that the earlier version of the LSI indicated high test-retest reliability.

Results

A demographic test of Japanese managers was first conducted about whether two Japanese corporations could be assumed to have similar characteristics of the following learning style variables: two relative learning preferences of AC-CE and AE-RO, two balanced learning styles of $|AC-CE|$ and $|AE-RO|$, and learning styles distributions.

Results of the demographic test indicated no statistical difference between Corp-A and Corp-B in terms of one learning variable of AE-RO (AE-RO: $t=0.53$, $p>0.05$), balanced learning orientations ($|AC-CE|$: $t = -1.74$, $p>0.05$; $|AE-RO|$: $t = 1.00$, $p>0.05$), and learning style distribution (Pearson Chi-square = 7.90, $p>0.05$). In terms of a variable of AC-CE, Japanese managers of Corp-A significantly differed in AC-CE ($t = -2.47$, $p<0.05$) from those of Corp-B. This result suggests that Corp-A managers exhibit their learning preference for CE (feeling) rather than AC (thinking) in comparison with Corp B managers. The result of this difference may be ascribed to the trait of Corp-B that is characterized as a highly advanced technology organization that requires more abstraction for its line of business. In fact, 38 % of Corp-B managers were associated with the job function of engineering and technology, while Corp-A held 15% of its own total managers. Due to this difference in AC-CE, this study made sub-samples to test Hypothesis 1 related to the variable of AC-CE.

As shown in Table 1, US managers exhibited their learning preference for the converging style, while the entire group of Japanese managers showed their learning preference for the diverging style. Results illustrated that there were significant differences in AC-CE ($t=-4.64$, $p<0.001$) and in AE-RO ($t=-2.74$, $p<0.01$) between the

whole group of Japanese managers and US managers, showing Japanese managers are more concrete and reflective whereas US managers are more abstract and active. In examination of sub-samples, Japanese managers of Corp-A significantly differed from US managers in AC-CE learning variables ($t=-5.72$, $p<0.001$), while those of Corp-B were insignificantly different from US managers ($t=-1.35$, $p>0.05$). Hypothesis 1 predicts that Japanese managers will rely on more CE (feeling) and more RO (reflecting) than US managers. Although overall results supported this hypothesis, results about the sub-sample of Corp-B in the AC-CE variable did not support it. Consequently, the hypothesis 1 was accepted in part.

Insert Table 2 about here

Table 2 illustrates the results of Chi-square test of independence by learning styles and nationality difference. In terms of Japanese managers, the accommodating style most occupied with 34% of the total count; the assimilating style held the second most with 29%; the diverging style had the third most with 23%; and the converging style was the least distribution with 15%. In contrast, American managers exhibited the converging style as the largest distribution with 42%; the assimilating style as the second largest with 28%; the accommodating style as the third term with 18%; and the diverging style as the smallest group with 13%. Results indicate that the learning style distribution was significantly related to nationality differences: Japanese managers and American managers (Pearson Chi-square = 26.64, $p<0.001$). With the exception of the assimilating

style, Japanese managers in comparison with American managers had more percentages on the accommodating and the diverging learning styles and few percentages on the converging learning style. American managers, as a whole, appeared to be more relatively homogeneous about learning styles and were greatly skewed towards the converging learning style (42%); the chi-square test was significance (Chi-square = 25.56, $p < 0.001$). In contrast, Japanese managers, as a whole, tended to be comparatively heterogeneous and seemed to be relatively bi-polarized at the accommodating (34%) and the assimilating styles (29%), though the chi-square test was also significant at the level of 0.05 (Chi-square = 10.13). Figure 2 depicts differences in learning style distributions between Japanese managers and American managers. As it can be seen in this figure, American managers extremely is leaned towards the converging learning style that relies on the AC and the AE modes, while Japanese managers are placed with more diverse in learning styles.

Insert Table 1 and Figure 2 about here

To understand, in depth, a homogeneous or heterogeneous tendency about learning style distributions both of Japanese and American managers, this study made a further analysis of a level of each two dialectical dimensions: AC (thinking) and CE (feeling) modes and AE (acting) and RO (reflecting) modes. In the AC and CE learning dimension, two learning styles of the accommodating and the diverging learning styles are categories as being more oriented to the CE mode, while the assimilating and the

converging learning styles are classified in more AC orientation. Similarly, in the AE and RO learning dimension, the accommodating and the converging styles lie within the AE mode of learning, whereas the diverging and the assimilating styles are placed in the RO mode.

Results of the Chi-square test show that Japanese managers made statistically equal distributions on both learning dimensions: the dimension of AC and CE modes (AC = 44% vs. CE = 56%; residuals = +/- 8; Chi-square = 2.00; $p > 0.05$) and that of AE and RO modes (AE = 48% vs. RO = 52%; residuals = +/- 2; Chi-square = 0.13; $p > 0.05$). This commensurate distribution is interpreted as a collective balance of learning styles in two learning dimensions. Conversely, American managers exhibited statistically unequal distributions of both learning dimensions: the dimension of AC and CE modes (AC = 70% vs. RO = 30%; residuals = +/- 25; Chi-square = 19.84; $p < 0.001$) and that of AE and RO modes (AE = 40.5% vs. RO = 59.5%; residuals = +/- 12; Chi-square = 4.57; $p < 0.001$). This distribution can be translated into a collective imbalance of learning styles in them. Results of the Chi-square tests suggest that the learning styles of Japanese managers represent the heterogeneous tendency that comes to a collective balance in the two dialectical dimensions, whereas those of American managers describe the homogeneous orientation that produces an imbalance in them. Hypothesis 2 predicts that Japanese managers will be more heterogeneous in learning styles than American managers. Results from the above tests supported Hypothesis 2.

Table 3 shows the results of the independent t-test between Japanese managers and American managers about balanced styles of individual learning. Results revealed

that American managers were significantly different in the balanced learning orientation between AE (acting) and RO (reflecting) modes ($|AE-RO|$: $t = 2.07$, $p < 0.05$) from Japanese managers and marginally different in that between AC (thinking) and CE (feeling) modes ($|AC-CE|$: $t = 1.77$, $p < 0.08$) from them. It is suggested that American managers are individually more balanced on the former dimension ($|AC-CE|$) and are marginally more balanced on the latter one ($|AE-RO|$) than Japanese managers. Hypothesis 3 predicts that US managers will be more balanced in learning styles than Japanese managers. According to the above results, Hypothesis 3 was accepted in terms of balanced learning styles of AE-RO, while it was marginally accepted in the other dimension of AC-CE.

Insert Table 3 about here

Discussion

The present study examined cross-cultural differences in managers' learning styles between Japan and the US. Hypothesis 1 was accepted in part on account of the results of the sub-sample of Corp-B, whose managers did not show a significant difference in AC-CE in comparison of US managers. As a possible explanation, Corp-B is more characterized as advance technological company where to call for its managers and employees to use logic or analysis in the line of high-tech industry as discussed earlier. In study of professional career, Kolb (1984) illustrated that technical managers and engineers lied in the converging learning style using abstraction and action learning

modes. This perspective indicates that learning styles may be more influenced by professional career choices than national cultures. Indeed, the study about Chinese and US teachers' learning styles conducted by Fridland (2002) drew a conclusion that occupation may be a more influential factor to determine learning styles more national cultures. As a research implication in the area of international management education, it is necessary to do research about interaction effects between national cultures and professional careers.

Japan is representative of a group orientation country typified as collectivism (Triandis, 1995; Hofstede, 1997), interdependent-self (Markus & Kitayama, 1991), and communitarianism (Trompenaars & Hampden-Turner, 1998). Conversely, the US is epitomized in languages of individualism (Triandis, 1995; Hofstede, 1997; Trompenaars & Hampden-Turner, 1998) and independent-self (Markus & Kitayama, 1991). The acceptance of Hypothesis 2 and the marginal acceptance of Hypothesis 3 provide an insight to see the business world with a unique angle of cultural differences. Results show that Japanese managers are more heterogeneous in learning styles than US managers, whereas US managers are more balanced in learning styles than Japanese managers. This study may suggest that if a country lies in a group oriented or collective country, like Japan, its organization may need to keep more symmetry of collective learning styles among its managers. This symmetry will generate a creative tension in a collective entity where to produce knowledge by resolving such a collective tension. If a country stays in an individual or individualism orientation like the US, its organization may have to hold individual managers who have their own symmetry in learning styles:

that is, balanced learning styles within themselves individually. This symmetry inside persons will serve to act as effective managers for knowledge creation and learning. These perspectives seem to make it possible to establish relationships between one dimension of individual-group oriented countries and the other dimension of individual-collective learning styles. Figure 3 illustrates the relationships.

Insert Figure 3 about here

These two kinds of symmetry seem to be needed according to national cultures in the dimension between individual and group orientations in organizations. A promising study should investigate a question about how such two kinds of countries develop and maintain such symmetry in accordance with the cultural orientation.

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Table 1 Results of the independent t-test of learning style characteristics of Japanese and American manager including sub-samples

		<u>Relative learning preference</u>		<u>t</u>		<u>Learning style as a whole</u>
		AC-CE	AE-RO	AC-CE	AE-RO	
Japanese managers (N=128)	mean	1.36	3.23	-4.64***	-2.74**	Diverging
	s.d.	13.63	12.64			
Corp-A (N=87)	mean	-0.64	3.72	-5.73***	-2.05*	Diverging
	s.d.	12.38	13.42			
Corp-B (N=41)	mean	5.61	2.20	-1.35	-2.61**	Assimilating
	s.d.	15.26	10.88			
US managers (N=126)	mean	8.52	7.26			Converging
	s.d.	10.83	10.77			

*** p<0.001; ** p<0.01; * p<0.05

Table 2 Results of the chi-square test of independence by learning styles and nationality

	<u>Learning styles</u>				<u>Pearson</u> <u>Chi-square</u>	<u>d.f.</u>
	Accommodating	Diverging	Assimilating	Converging		
Japanese managers (N=128)						
Count	43	29	37	19	26.64***	3
% within nationality	34%	23%	29%	15%		
Std. residual	1.8	1.3	0.1	-2.9		
US managers (N=126)						
Count	22	16	35	53		
% within nationality	18%	13%	28%	42%		
Std. residual	-1.8	-1.3	-0.1	2.9		

*** p<0.001

Table 3 Results of the independent t-test of balanced learning style of Japanese and American manager

		<u>Balanced learning orientation</u>		<u>t</u>	
		AC-CE	AE-RO	AC-CE	AE-RO
Japanese managers (N=128)	mean	11.52	10.48	1.77 ⁺	2.07*
	s.d.	7.68	7.53		
US managers (N=126)	mean	9.92	8.83		
	s.d.	6.62	6.72		

* p<0.05; ⁺ p<0.1

Figure 1 Relationships between Kolb's learning model and Nonaka's model of organizational knowledge creation

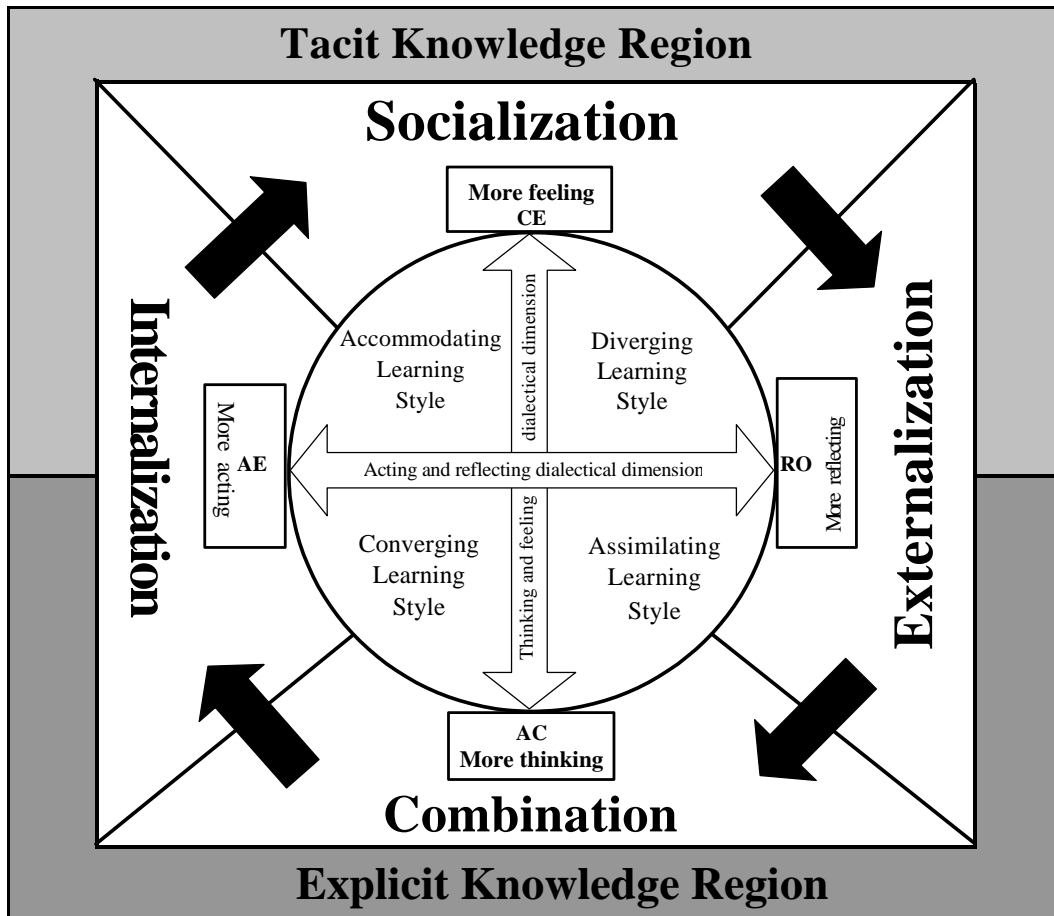


Figure 2 Differences in learning style distributions between Japanese and US managers

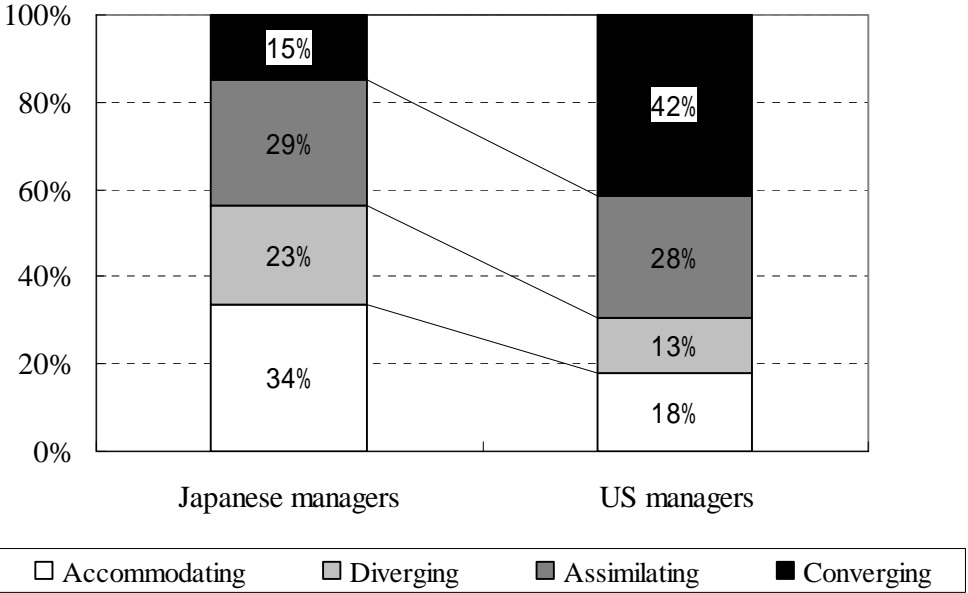


Figure 3 *A matrix by a cultural dimension and learning styles*

	Collective learning styles	Individual learning styles
Group oriented countries	Symmetry	Asymmetry
Individual oriented countries	Asymmetry	Symmetry