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Dialectical thinking: A cross-cultural study of Japanese, Chinese, and British students

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Peng and Nisbett found that Chinese people are more apt to engage in dialectical thinking (DT) than Americans. We gave the Dialectical Self Scale questionnaire and 10 pairs of opposing opinions to high school and university students of Japanese, Chinese, and British nationality. We asked them to fill in the questionnaire, to rate how strongly they agreed with each opinion, and to rate how wise it is to think dialectically. The scores on the questionnaire were higher among Easterners than among Westerners and higher among university students than among high school students. But the results of opinion agreement indicated that the dialectical tendency was stronger among the Chinese and British than among the Japanese. Furthermore, however, Japanese participants judged DT as wiser than Chinese and British did, and Chinese university students believed it was wiser than Chinese high school students did. We propose that this effect is attributed to Marxist education in China.

Keywords: Cultural difference; Dialectical self; Dialectical thinking.

According to Hegelians, dialecticism is defined as an inference in which a synthesis is inferred from a thesis and its antithesis. Thus, dialecticism is expected to produce a higher level conclusion where there are some opinions which contradict each other, in contrast to propositional logic which does not allow contradiction. This process can also be seen in cognitive development. But Piagetian

dialectic is distinct from Hegelian. According to Piaget (1980), Hegel's idea about the concept as "containing its opposite" or "identity of opposites" could be interpreted as containing a predetermination of the denial in any concept. On the contrary, Piaget argued that dialecticism may be needed when one faces two opposite operations, but it is not always predetermined in the process of

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thinking. For instance, the two operations of seriation and classification are necessary for the acquisition of natural numbers. This process is not such as that a synthesis is inferred from a thesis and its antithesis.

The idea of dialecticism is compatible with the “new paradigm” in the psychology of reasoning (e.g., Over, 2009), which abandons propositional logic as the norm of thinking, but adopts probability and decision-making theory. Although the new paradigm has not yet taken cultural differences into consideration, Peng and Nisbett (1999) have already found that the thinking style of Chinese was more dialectical than that of Americans. They conducted several cross-cultural experiments to compare Chinese with Americans. For example, Chinese were less sensitive to contradictory proverbs and were more accepting than Americans of proverbs with contradiction such as “too humble is half proud” for example. Furthermore, Peng and Nisbett (1999) demonstrated that Chinese participants rated their agreement with two statements which were contradictory of each other more moderately when both of the two statements were presented than when either of the statements was presented individually. This trend was not observed in the data of Americans. The results indicate that Chinese are more likely to take the middle way when they encounter opinions which are contradictory of each other.

Easterners’ tendency to think dialectically is contrasted with Westerners’ rule-based thinking style (e.g., Norenzayan, Smith, Kim, & Nisbett, 2002; Yama et al., 2010). Nisbett, Peng, Choi, and Norenzayan (2001) viewed this distinction as reflecting the difference between Easterners’ holistic cognition and Westerners’ analytic cognition.

The claim of Peng and Nisbett (1999) was confirmed by questionnaire studies. For example, Spencer-Rodgers, Boucher, Mori, Wang, and Peng (2009) reported that Easterners have a more dialectical self-concept than Westerners. One of the questionnaires which was used in their study was the Dialectical Self Scale (DSS). It includes statements such as “When I hear two sides of an argument, I often agree with both”, and thus the authors propose that it measures people’s attitude towards dialectical thinking (DT), including the tendency to accept opposite statements. The Easterners’ attitude of dialecticism was also reported by Spencer-Rodgers, Peng, Wang, and Hou (2004). They found that Chinese gave more conflicting responses in self-evaluation than Americans. In other words, Chinese respondents’

self-evaluations were both positive and negative. Furthermore, Spencer-Rodgers and colleagues (2004, 2009) propose that Easterners’ DT style is strongly related to their tendency to predict more changes than Westerners do based on their data of questionnaire studies. Ji, Nisbett, and Su (2001) already found that Chinese predicted changes more than Americans. For example, Chinese judged it more likely that a couple at a university will break up after graduation than Americans. Furthermore, Chinese judged it wiser to predict changes than Americans. Ji et al. proposed that Easterners not only predict more changes but also appreciate predicting changes positively.

Spencer-Rodgers, Williams, and Peng (2010) give an explanation for this tendency amongst Easterners based on cultural traditions. According to them, Westerners’ style of thinking is affected by the philosophy of Ancient Greece, whereas Easterners’ style of thinking derives from the tradition of Taoism, Confucianism, and Buddhism. For example, the concept of *yin* (negative aspects of the world) and *yang* (positive aspects of the world) is central to Taoism. It is used to describe how polar opposites or seemingly contrary forces are interconnected and interdependent in the real world. It reflects the tradition of Chinese ontology that the world is constantly changing like the changes between *yin* and *yang* and is full of contradictions.

Furthermore, they argue that Easterners’ dialecticism is different from higher level dialecticism such as Hegelian dialecticism and Piagetian dialecticism. Spencer-Rodgers et al. (2010) call Easterners’ dialecticism naive dialecticism, which represents three aspects of Easterners’ minds. The first is people’s folk belief that things are always changing—that the universe is in a constant state of variation between two extremes or opposites. The second is that they tolerate contradictions. The third is that people are likely to take a middle way when they encounter two opposite opinions—a folk belief that the truth is always somewhere in the middle. The middle way is not necessarily a higher level synthesis.

However, the result that Easterners were more likely to take a middle way (Peng & Nisbett, 1999) has not been replicated. Mercier, Zhan, Qu, Lu, and Van der Henst (*in press*) conducted a replication of Peng and Nisbett (1999) with French and Chinese participants, but neither group took a middle-way resolution when they were confronted with a pair of contradictory statements. Mercier, Yama, Kawasaki, Adachi, and Van der Henst (2012)

found that neither French nor Japanese took a middle-way resolution when they received advice which was opposite to their own opinion. Furthermore, Friedman, Chen, and Vaid (2006) did not replicate Peng and Nisbett's (1999) results using contradictory proverbs.

This study addresses three problems. The first problem is if Easterners are really more dialectical than Westerners. The second issue is the cognitive development of DT in adolescence. The third is on the influence of education.

For the solution of the first problem, we used three measures. The first was the measure of DSS. This questionnaire was used in order to confirm the results of previous cross-cultural studies using DSS where the score of Easterners is higher than that of Westerners (e.g., Hamamura, Heine, & Paulhus, 2008; Spencer-Rodgers et al., 2009). The second was the measure of DT. We made 10 pairs of opinions (Set A and Set B) which were contradictory to each other. All the materials are shown in Appendix A. We asked our participants to rate how strongly they agreed with each opinion. If people have tolerance for contradiction, they will agree or disagree with both of the opinions. Generally speaking, the effect of culture is greater if it is the product of human implicit and automatic processes (e.g., Bargh, 2007). This is because an implicitly learned cultural sense of value is unlikely to be revised even if it is not rational.

One of the characteristics of our method is to give each pair separately, and our participants were given the 32 items of DSS as a distractor between the rating of the 10 opinions of Set A and rating the 10 opinions of Set B. This procedure makes it more likely that people will not remember the rating of As when they rate Bs, and thus their rating is at a more implicit level. A plausible reason why Mercier et al. (in press) did not find the cultural differences in DT is because they presented each pair of sentences together. Although Peng and Nisbett (1999) also presented them together, it is plausible that the cultural differences might have been greater if they had measured individual DT at the implicit level.

The third measure was on wisdom judgement (WJ). This is a point which is not discussed by Peng and Nisbett (1999). It is whether Easterners judge that it is wise to think dialectically. Ji et al. (2001) found that Chinese not only predicted changes more, but also judged it wiser to predict changes than Americans. However, this cultural difference has not yet been demonstrated in relation to DT specifically. To investigate the

cultural differences, we gathered data from Japanese, Chinese, and British participants. According to Peng and Nisbett (1999) and Spencer-Rodgers et al. (2010), all the scores of the three measures of Easterners should be higher than those of Westerners. Although this is not yet confirmed, it is very plausible that the WJ score of Easterners will be higher than that of Westerners.

As for the second problem, researchers of cross-cultural differences in DT have not yet discussed its cognitive development in adolescence. Piaget (1980) assumed that humans acquire a DT style to deal with complex problems after the operational stage. Riegel (1973) expanded Piaget's theory to capture human development after the peak of non-contradictory thinking in formal operations. Riegel argued that people need mature wisdom to think dialectically, in order to solve complex problems in the real world when they become adults. To investigate the cognitive development of DT during adolescence, we compared the scores of 10th grade students with those of university students. According to Piaget (1980) and Riegel (1973), university students will think more dialectically than high school students do. However, because the questionnaire of DSS is assumed to measure individual naive dialecticism (Peng & Nisbett, 1999; Spencer-Rodgers et al., 2010), the DSS score of university students should not be higher than that of high school students. We also predicted that we would find no effect of development in the DT measure and the WJ measure, because they are also assumed to measure individuals' tendency towards naive dialecticism.

The third problem is the influence of education. Cultural differences in cognition are not seemingly based on strong individual differences, hence an individual's cognitive style can be changed by education. For example, Koo and Choi (2005) reported that Korean students who major in oriental medicine think more holistically than those who major in psychology. They inferred that students of oriental medicine were taught the harmony of the human body, and it led to said differences in thinking style between the two types of student. We examined the possibility that the Chinese tendency to think dialectically is due to the Marxism-themed education (e.g., Zhou, 2008) given to 11th grade students in China. Karl Marx and Friedrich Engels proposed the notion of dialectical materialism, which is a method of understanding history and economics. The concept

is based on Hegelian thesis–antithesis–synthesis dialectics but shifts dialectical activity away from the Hegelian mental world to the physical world, the material world of economic change. Dialectical materialism refers to metaphysically directed historical change that follows dialectical rules. However, there are many kinds of dialecticism, and each has its cultural-historical origin (Wang, 2006). Hence, because Easterners' dialecticism is naive (Peng & Nisbett, 1999; Spencer-Rodgers et al., 2010), the Marxism-themed education may not influence the three kinds of score of the measures. On the contrary, it has been demonstrated that human naive theory is hard to change even if they are taught scientific theory (e.g., Clement, 1982). Hence it is plausible that the Marxism-themed education does not construct the mental concept of Marxist dialectics in Chinese people but reinforces their naive dialecticism.

In order to test the hypothesis of naive dialecticism (Peng & Nisbett, 1999; Spencer-Rodgers et al., 2010) and its alternative hypotheses (Mercier et al., *in press*), and to investigate the effect of cognitive development and the effect of Marxism-themed education, our experimental design is 3 (Japanese, Chinese, and British) by 2 (10th grade students and university students). The comparison of university with 10th grade students allowed us to address a gap in the literature, namely an investigation of the post-operational period, by comparing the performance of 10th grade students with that of university students who were either Japanese, Chinese, or British.

METHOD

Design

The fully between groups design was 3 (culture: Japanese, Chinese, British) by 2 (grade: high school student, university school student) for each measure.

Participants

Seventy-nine Japanese 10th grade students (male 28, female 51, mean age: 15.7), 66 Japanese university students (male 17, female 49, mean age: 20.8), 61 Chinese 10th grade students (male 21, female 40, mean age: 16.5), 58 Chinese university students (male 8, female 50, mean age: 21.5), 92 British 10th grade students (male 38, female 49,

unknown 5, mean age: 15.5), and 36 British university students (male 6, female 30, mean age: 23.9) participated in this experiment. The data of two British high school students and two British university students were excluded from the analysis, because they were African or Asian British.

Materials and procedure

Three measures were used in this experiment. We used the standardised questionnaire known as the DSS, and 10 pairs of opinions which were opposites of each other, such as:

- (1) I think that it is good to accept foreign cultures, to be part of a nation which responds to the globalising world.
- (2) I do not think it is good to accept foreign cultures, because our traditional folk customs and cultures are broken.

The original DSS was in English and Chinese. We used the Japanese version of Hamamura et al. (2008). The 10 pairs of opinions of the Japanese version were translated to English with back translation to Japanese and were translated to Chinese with back translation to Japanese. The back translation was done so that we could confirm that the three versions were identical in sense. The materials were printed on a booklet for each participant, with the instructions on the front page. First, our participants rated how strongly they agreed with each of the 10 opinions in Set A on a 7-point scale. Second, they answered the DSS questionnaire including 32 items with agreement indicated on a 7-point scale. Third, they rated how strongly they agreed with the remaining 10 opinions (Set B), each of which was opposite to its counterpart presented in the earlier set of opinions (Set A). Finally, they were given a further 10 pairs of opposing opinions (to test WJ). For each pair (this time, the pairs were presented together), they were asked to rate, on a 7-point rating scale, how sensible it was to believe only one statement to be true at one time. Hence the wisdom score was calculated by reverse scoring.¹ Because higher scores on this judgement score indicated the wisdom of non-DT, the wisdom score of DT was computed by reversing this score.

¹It might have been possible to have asked our participants if they believed that it was wise to agree or disagree with both the opinions. However, we avoided the usage of “or” in the question.

RESULTS

Because one Japanese high school student, six British high school students, and one British university student did not respond to all the questions, their data were excluded from statistical analysis.

The mean DSS score for each group is shown in Figure 1. An ANOVA was conducted using a fully between-groups 3 (culture: Japanese, Chinese, and British) by 2 (grade: high school, university) design for each dependent measure. The DSS score of each participant was the mean rating of the 32 items. The mean DSS score of each condition is shown in Figure 1. The main effect of culture was significant, $F(2, 378) = 33.86, p < .01$. Multiple comparisons using the Bonferroni correction revealed that the Japanese mean score was higher than that of the Chinese, and that the Chinese mean score was higher than that of the British participants. The main effect of grade was significant, $F(1, 378) = 10.20, p < .01$. The score of university students was higher than that of 10th grade students. The two-way interaction was not significant, $F(2, 378) = 2.94, ns$.

The DT score² of each participant was computed as follows. Within a pair, each raw score of A and B was transformed into a Z-score, so that the mid-point 4 equals zero.

$$Z\text{-score } Ai = (\text{raw score } Ai - 4) / SD_{ABi}$$

$$Z\text{-score } Bi = (\text{raw score } Bi - 4) / SD_{ABi}$$

$$(i = 1 - 10)$$

$$\text{Dialectical thinking score (DT score)} = \sum |(Z\text{-score } Ai + Z\text{-score } Bi)| / 10$$

The mean DT score in each condition is shown in Figure 2. The main effect of culture was significant, $F(2, 378) = 17.30, p < .01$. But the pattern of cultural difference was different from that of the DSS score. Multiple comparisons using the Bonferroni correction revealed that the score of the Japanese was lower than that of the Chinese and the British. The

² If a participant responds perfectly non-dialectically, the sum of the two scores of a pair equals 8. Hence the deviation from this standard could be regarded as a measure of dialectical thinking, and the dialectical thinking score of each participant could be computed as the mean of absolute value of 8—the sum of two scores of 12 pairs. However, if participants rate at extreme values, errors, including regression errors, can be greater, and thus these errors are counted as deviation. Therefore, this measure was not adopted in this study.

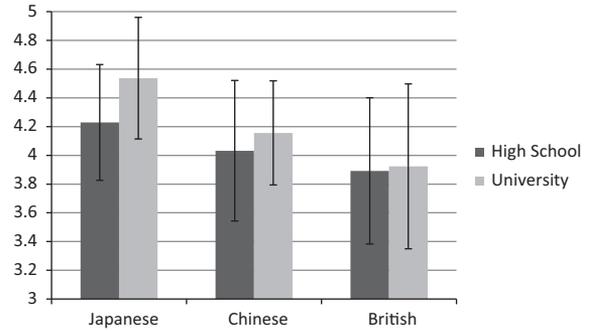


Figure 1. The mean score of DSS for each group. Vertical scale on graphs is standard deviation of each group.

difference in score between the Chinese and British was not significant. The main effect of grade was not significant, $F(1, 378) = 1.21, ns$. The two-way interaction was not significant, $F(2, 378) = .31, ns$.

Each individual’s wisdom score is the mean of the reversed ratings of 10 pairs. The mean wisdom score in each condition is shown in Figure 3. The main effect of culture was significant, $F(2, 378) = 25.94, p < .01$. The pattern of cultural difference was similar to that of the DSS score but dissimilar to that of the DT score. Multiple comparisons using the Bonferroni correction show that the score of the Japanese was higher than that of the Chinese and the British. The difference in score between the Chinese and British was not significant. The main effect of grade was significant, $F(1, 378) = 5.48, p < .05$. The mean score of 10th grade students was lower than that of university students. The two-way interaction was significant, $F(2, 378) = 4.84, p < .01$. Therefore, we conducted further analysis for the interpretation of this interaction. The simple main effect of grade of the Japanese was not significant, $F(1, 378) = 1.86, ns$. The simple main effect of grade of the Chinese was significant, $F(1, 378) = 13.46, p < .01$. The

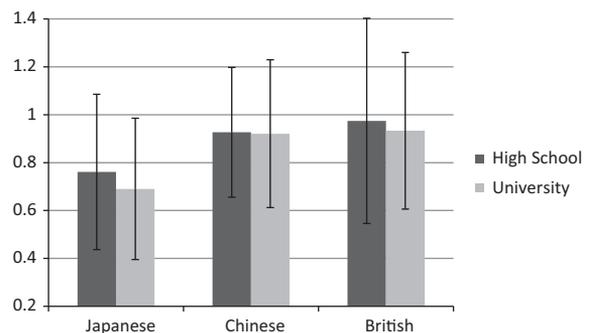


Figure 2. The mean dialectical thinking score of each group. Vertical scale on graphs is standard deviation of each group.

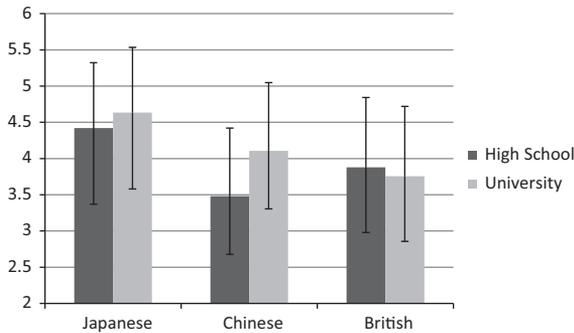


Figure 3. The mean wisdom score of each group. Vertical scale on graphs is standard deviation of each group.

mean score of university students was higher than that of 10th grade students. The simple main effect of grade of the British was not significant, $F(1, 378) = .66$, ns. It was only among Chinese that the wisdom score of university students was higher than that of 10th grade students.

All the α -scores are shown in [Appendix B](#). Those of the DT score were not very high particularly among the Chinese. This scale may not be very reliable, but we have 10 pairs so that the errors were counterbalanced.

Correlations between the DSS score, the DT score and the wisdom score in each cultural group are shown in [Table 1](#). We did not further divide the data into the university data and the high school data, because the correlation patterns of both groups were almost identical. Generally, these correlations were not high. It was only among the British that the correlation between the DT score and the wisdom score was significant. The correlation between the DSS score and the WJ score was even negatively significant among the Japanese.

TABLE 1

Correlations between DSS score, DT score, and wisdom score

	<i>DT score</i>	<i>WJ score</i>
<i>Japanese</i>		
DSS score	.054	-.241**
DT score		-.028
<i>Chinese</i>		
DSS score	-.114	.024
DT score		-.047
<i>British</i>		
DSS score	.099	.063
DT score		.184*

DSS, Dialectical Self Scale; DT, dialectical thinking; WJ, wisdom judgement.

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

DISCUSSION

The cultural differences in the DSS scores were almost the same as those of the previous studies (Hamamura et al., 2008; Ma-Kellams, Spencer-Rodgers, & Peng, 2011; Spencer-Rodgers et al., 2009) in the sense that the dialecticism score of the British was the lowest. However, we also found differences between the Chinese and Japanese. These differences are not explicable by theories of cultural differences between Westerners and Easterners (e.g., Nisbett et al., 2001). The DSS may be sensitive to specific cultural characteristics of each country, but we will discuss this difference later. Although there were not differences in the WJ scores between Chinese and British, the pattern of cultural differences in these scores was similar to that of the DSS. People's belief that DT is wise may be one of the aspects of Easterners' naive dialecticism. However, the correlations between the DSS scores and the WJ scores were not high; on the contrary, the correlation of Japanese was negative and significant. We are not certain about this negative correlation.

Very surprisingly, the pattern of cultural differences in the DT scores was opposite to that of cultural differences in the DSS scores. Although the DSS scores were higher among the Japanese and Chinese than among the British, the DT scores of Japanese were lower. These results confirm the doubt voiced by Mercier et al. (in press). Even if Easterners are dialectical in how they view the world as the DSS measures, they do not actually agree nor disagree with contradictory opinions. A possible reconciliation is that the DSS and the WJ measure individuals' tendency to naive dialecticism, whereas the DT measures other kinds of dialecticism such as Hegelian or Piagetian.

However, the results on cognitive development make our interpretation more puzzling. We found that the DSS scores of university students were higher than those of high school students. This indicates that the individual's view of the world gets more dialectical during the development of adolescence, and that this difference may reflect cognitive development in the post operational stage (Riegel, 1973). But Spencer-Rodgers et al. (2010) argue that Easterners' dialecticism is naive and different from that of the higher level of dialectic thinking in the post operational stage, so the tendency measured by the DSS may indeed be that of post operational dialecticism. Therefore,

we hold two possibilities. The first is that what the DSS measure includes not only individuals' tendency to naive dialecticism but the thinking style of higher level dialecticism such as Piaget (1980) and Riegel (1973) propose. The second is that the cognitive development in DT during adolescence is distinct from the development of higher level dialecticism, which Piaget (1980) and Riegel (1973) define as the post-operational thinking. Thus, the result that we did not find the effect of grade in the DT measure may support the latter interpretation. This problem should be addressed in the near future.

One of the biggest findings is that it is only among Chinese that the scores of university students were higher than those of 10th grade students. We propose that this difference reflects the effect of Chinese education in the dialectical materialism of Marxism, which is given to 11th grade students. Marxist Dialecticism is regarded as a higher level of dialecticism which itself is related to Hegelian dialecticism. However, this education apparently has an effect only on the Chinese attitude towards the WJ of DT. The effect of Marxism-themed education was not apparent in the DSS scores nor the DT scores. This indicates that the WJ can be distinct from what the DSS measures and from DT when encountering opposite opinions.

Our results, but for those of the DSS, did not support the claims of Peng and Nisbett (1999). Furthermore, even in the results of the DSS, the differences between the Japanese and Chinese cannot be explained by any theory based on the distinction between Westerners and Easterners. So are there any other theories which possibly explain our findings?

As for the differences between Japanese and Chinese, a promising theory is Hall's (1976) contrast between Easterners' high-context culture and Westerners' low-context culture. The term "context" indicates implicit assumptions which people share and rely on when they produce communication. Context is embedded in information with the purpose of creating meanings in a message. In the cultures of high context, even if there are explicit contradictions in verbal expression, it is more easily resolved using the shared assumption implicitly. Hence context information can be viewed as common sense and sometimes regarded as redundant in communication. Dialecticism is more likely to be enhanced in high-context cultures, because even if people encounter a contradiction, it can be resolved using its context

implicitly. For instance, given the contradiction that a man believes that he is both kind and unkind, the context surrounding himself helps him to resolve the contradiction. However, it seems that the resolution by context does not work when encountering actually opposite opinions as the case of tackling the DT task. According to Hall (1976; Hall & Hall, 1990), generally speaking, Westerners have a low-context culture whereas Easterners have a high-context culture. In this sense, the distinction between high-context culture and low-context culture can be regarded as just one of the aspects of the cultural theory (e.g., Nisbett et al., 2001). However, according to Hall and Hall (1990), Japan is one of the highest context culture countries. This is supported by Würtz (2006) who conducted an analysis of websites and found that Japanese, Chinese, and Koreans, who are assumed to be in high-context cultures, adopted the visual effects offered by the Internet to convey their messages efficiently more than Germans, Americans, and North Europeans, who are assumed to be in low-context cultures. Furthermore, Japanese culture is higher context than Chinese culture in the sense that components such as subjects are more omitted in Japanese sentences than in Chinese sentences. The omitted components can be inferred by context in the conversation. This explanation may explain the differences in DSS score between Japanese and Chinese.

The important fact is that we found at least three levels of DT, as shown by these measures. The level of DT as shown by Peng and Nisbett (1999) may be similar to the level of dialecticism measured by the DSS. What the DT score and the wisdom score reflect may be different from the dialecticism that the DSS measures. Furthermore, we have a doubt that what the DSS measure corresponds to naive dialecticism. The unresolved problem relates to the results of DT and WJ measures, which indicate that Japanese culture can be distinct from Chinese and British cultures. However, this explanation is still in the stage of speculation and is not fully investigated. We expect that this issue will be addressed in the near future. For the development of this field, including cultural differences, the new paradigm which assumes the value of uncertain, void, or draw between the values of truth and false is expected to be applied to cross-cultural studies (e.g., Politzer, Over, & Baratgin, 2010).

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APPENDIX A: TEN PAIRS OF OPINIONS WHICH ARE OPPOSITE TO EACH OTHER

- (1) (a) I think that it is good to accept foreign cultures, to be part of a nation which responds to the globalising world.
(b) I don't think it is good to accept foreign cultures, because our traditional folk customs and cultures are broken.
- (2) (a) I don't think that it is good to learn about just one area of professional knowledge, because this means that one does not learn about other areas of academic knowledge.
(b) I think that it is good to learn just one area of professional knowledge, because it will be useful for the work in the future.
- (3) (a) I think that it's easy for children from wealthy families to succeed because they have the use of their family's money.
(b) I think that it's easy for children from poor families to succeed because they are trained in life skills from childhood.
- (4) (a) Things are getting worse with population growth, environmental degradation and so on.

- (b) Things are getting better with the development of science and technology, the wisdom of mankind, and so on.
- (5) (a) I think that people's destiny cannot be changed even if they try hard.
(b) I think that if people want to and try hard, they can change their destiny.
- (6) (a) I think that computers are good because there is a lot of useful software available.
(b) I don't think that computers are good because they waste a lot of time for a lot of people.
- (7) (a) Because daily life is full of challenges and changes, it's fun.
(b) Because daily life is full of boring work and study, it's not fun.
- (8) (a) I think that avoiding mistakes in life is beneficial in the long-run.
(b) I think that making mistakes in life is beneficial in the long-run.
- (9) (a) I think that, because of gender differences, some types of work are more suitable for men, but others are more suitable for women.
- (b) I think that even though there are gender differences, many types of work are possible for both men and women.
- (10) (a) I think that individual personality is innate.
(b) I think that individual personality is greatly affected by the environment.

APPENDIX B: CRONBACH'S α EFFICIENT OF EACH SCALE

	<i>DSS</i>	<i>DT</i>	<i>WJ</i>
<i>Japanese</i>			
High school	.605	.461	.765
University	.742	.395	.870
<i>Chinese</i>			
High school	.528	.102	.609
University	.469	.282	.784
<i>British</i>			
High school	.706	.644	.706
University	.823	.408	.589

DSS, Dialectical Self Scale; DT, dialectical thinking; WJ, wisdom judgement.