Cultural Difference in Dialectical Response Style: “How Much Yes Is in Your Yes?”

by

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Abstract

Cross-cultural variation in response style has been documented by a large body of evidence. The current research follows the perspective that culture importantly influences response style. We have focused on East Asian dialectical thinking, or tendency to tolerate psychological contradiction. In recent years, number of studies have shown dialectical nature of East Asian’s cognition, self-concept, well-being, and affect. In addition, these fascinating studies have also shed lights onto dialectical thinkers’ response style. In study 1, we investigated and captured the dialectical response style of Japanese and Asian-Canadians in the domains of self-esteem, personality and attitudes. In three different domains, Japanese and Asian-Canadians responded to positive and reverse items in a less converging manner compared to European-Canadians. Study 2 introduced differential item functioning (DIF) analyses to the study of dialectical response style. We have found that even after individuals are matched on their positive self-esteem, cultural differences in negative self-esteem persist. Conversely, even when negative self-esteem is matched on, cultural differences in positive self-esteem persist. Implications of this research to the use of reverse items in cross-cultural survey research, psychometrics, as well as adding a cautionary note about the validity of cross-cultural survey research are discussed.
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Cultural Difference in Dialectical Response Style: “How Much Yes Is in Your Yes?”

The survey method is one of the favorite methodologies for social scientists, as surveys are relatively easier to design and implement compared to other methodologies. Surveys can take various forms. For example, they can ask people to list their thoughts freely in an open-ended question format, or they can ask people to evaluate statements with a Likert-scale. In any cases, an important assumption underlying the survey method is that people respond to it in a way that is consistent with how they “truly” feel and think.

Years of research, however, have revealed that this can not be accepted without reservations, as people have reasons to distort their “true” beliefs and feelings. One demonstration of this point comes from the bogus pipeline studies. In a typical bogus pipeline study, participants are attached to an apparatus that is supposedly capable of recording their genuine feelings and thoughts. The rationale is that to the extent that individuals believe the apparatus can tell their true feelings and beliefs, their responses should differ from the one provided without the apparatus. For example, in one study, smokers who were either told or not told about a follow up breath examination were asked if they had smoked within the last hour. The finding was that while 86% of those who were anticipating the follow up exam said that they smoked, only 64% did so when the objective verification was not anticipated (Bauman & Dent, 1982). A recent meta-analysis showed converging evidence of the bogus pipeline procedure in revealing people’s “true” beliefs and feelings ($d = .41$) (Roese & Jamieson, 1993).

Bogus pipeline studies indicate the extent to which individuals distort their responses to appear socially desirable, or social desirability bias, which is one of commonly identified response biases (Paulhus, 1991). Social desirability is a response bias because individuals
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with social desirability concerns are answering a question (e.g., “did you smoke within last hour?”) on a basis that is irrelevant to the question being asked (e.g., “I don’t want to be seen as a heavy smoker, so I will say I didn’t smoke”). Two other major response biases are the acquiescence bias, which is individuals’ tendency to agree or “yea-saying” regardless of content, and extreme response bias, which is the tendency to respond to questions in extreme manner (e.g., by choosing 1 or 7 in 7-point scale). To the extent that the same individuals exhibit the same response pattern consistently, it has been suggested that response biases should be considered as individual’s response style and should be studied on its own right (e.g., Hui & Triandis, 1985; Smith, 2004). Hence, much research focused on the questions of how and why some individuals, but not others, come to exhibit particular response styles.

Methodological Issues in Cross-Cultural Survey Research

When survey research deals with multiple cultures, an additional set of methodological issues comes into play. Translation is one obvious hurdle, though the method of back translation or agreement among multiple bilinguals seems to work fine in general. One more substantial methodological issue would be the reference group effect (Heine, Lehman, Peng, & Greenholtz, 2002). Reference group effect becomes an issue when a question asks people to compare themselves against some others, because “others” that people think of would vary systematically across cultures. This is particularly problematic if two reference groups vary in the construct of interest. For example, if Canadians and Japanese were asked to compare their height with some others, it could be the case that Canadian who says he is short could actually be taller compared to Japanese who says he is tall, because it is likely that the reference groups, a group of Canadians for Canadian participants and group of Japanese for Japanese participants, differ in height. Hence,
individuals’ responses become confounded with the characteristics of their reference groups, and interpreting these responses need to be done cautiously.

In addition to these methodological issues, conventional response biases (i.e., social desirability, acquiescence, and extreme response) are also problematic in cross-cultural research. In fact, numerous instances of cultural differences in response styles have been documented. For example, compared to European Americans, African-Americans (Bachman & O’Malley, 1984) and Latino Americans (Hui & Triandis, 1989) were found to respond more in extreme manner. Mexicans (Ross & Mirowsky, 1984), Puerto Ricans (Krause & Carr, 1978), and Filipinos (Grimm & Church, 1999) were found to acquiesce more compared to Americans. Compared to Northern Europeans, those living in Mediterranean countries (Greece, Spain, Italy) were found to acquiesce and use extreme responses more (van Herk, Poortinga, & Verhallen, 2004). Egyptian students made use of extreme responses more often than Jordanian and Syrian students (Soueif, 1968). Compared to Australian children, children in China, Nepal, and the Philippines were found to acquiesce more (Watkins & Cheung, 1995). The flip side of the extreme responses is the moderacy bias, or the tendency to give moderate responses by choosing middle of the scale. Several studies have found that the moderacy bias is more pronounced among East Asians (Chinese, Japanese, Koreas) compared to Americans (Chun, Campbell, & Yoo, 1974; Chen, Lee, & Steveson, 1995; Si & Cullen, 1998; Zax & Takahashi, 1967).

A few studies have also focused on acculturation effects. For example, when responses from Latino Americans were analyzed separately by their acculturation stages, less acculturated individuals were found to acquiesce more and respond in more extreme styles compared to more acculturated individuals (Marín, Gamba, & Marín, 1992). Kuroda,
Hayashi, & Suzuki (1986) administered English and Japanese version of the same questionnaire to a group of bilingual Americans and Japanese, and found that both Americans and Japanese chose more moderate responses in the Japanese version compared to the English version.

In sum, cross-cultural research has documented numerous instances of cultural differences in response styles. What is not necessarily clear from this literature is whether or not the observed cultural variations are systematic. In fact, there is some skepticism in the field suggesting that the cultural variations are not systematic, therefore, not a serious threat to cross-cultural survey research (e.g., Grimm & Church, 1999).

There are few theoretical attempts to account for the observed cultural variations. One of these is the individualism-collectivism framework (Triandis, 1995). The dimension of individualism-collectivism has been very influential in cross-cultural research giving rise to many theories and research projects, although a recent meta-analysis finds poor empirical support for cultural differences in this dimension (Oyserman, Coon, & Kemmelmeier, 2002) which may largely be due to poor measurement (Heine et al., 2002). Under the broad framework of individualism-collectivism, many Asian, Mediterranean, and Latin American countries have been proposed to fall into the category of collectivism, which is defined as a "social pattern consisting of closely linked individuals who see themselves as parts of one or more collectives (family, co-workers, tribe, nation); are primarily motivated by the norms of, and duties imposed by, those collectives; are willing to give priority to the goals of these collectives over their own personal goals; and emphasize their connectedness to members of these collectives" (Triandis, 1995, p. 2).
In the context of response style, Triandis and his colleagues have suggested that response styles of those living in collectivist societies reflect the importance of their collectivistic life, though the ways in which collectivistic life are honored varies among collectivistic societies (Hui & Triandis, 1989). For example in East Asia, modesty is the key in honoring collective life (for similar discussion, see Chen et al., 1995), while in Mediterranean societies, collective life is honored by making sure that ones' opinions are expressed explicitly and sometimes extremely. In fact, not expressing extreme views might be seen as hiding opinions. According to this theory, it is these social practices that are reflected in the moderacy bias of East Asians and extreme response style of Mediterraneans (and Latin Americans).

In the current research, we follow and extend the previous theorizing on cross-cultural response style research by exclusively focusing on East Asian cultures, particularly Japanese. To the extent that response styles are influenced greatly by individuals' culture (Hui & Triandis, 1989; Smith, 2004), focusing on East Asian cultures should provide us with a good insight into East Asians' response style. In focusing on East Asian cultures, there could be a number of different approaches one could take. In the current research, we focus on East Asians' dialectical thinking or tendency to tolerate contradictions (Peng & Nisbett, 1999).

**East Asian Dialectical Thinking**

Peng and his colleagues (Peng & Ames, 2001; Peng & Nisbett, 1999; 2000; Peng, Ames, & Knowles, 2001; Spencer-Rodgers & Peng, in press) have argued that East Asians and Westerners differ in their dealing of contradictions. One important distinction to draw here is that of logical and psychological (seeming or apparent) contradictions, as Peng and
his colleagues have suggested that it is psychological contradictions where cultures differ in their dealing.

One demonstration of this point comes from a cross-cultural study of reasoning (Norenzayan, Smith, Kim, & Nisbett, 2002). In this study, American and Korean participants solved a number of syllogisms, some of which took the form of premises supporting a plausible conclusion (e.g., “some highly trained dogs are not police dogs”) whereas the others took the form of premises supporting an implausible conclusion (e.g., “cigarettes are good for health”). In addition, some syllogisms were presented in an abstract form (e.g., “All A are B. C are not B. C are not A.”) In this study, Americans and Koreans did not differ with their dealings of abstract syllogisms. However, significant cultural differences emerged for contextualized syllogisms, in that Koreans were influenced more by the plausibility of the conclusion. In other words, Koreans were more likely to incorrely say a syllogism is invalid when the conclusion was implausible. Thus, this study shows that East Asians and Westerners are equally capable of following logic in abstract problems, but the extent to which logic is used for more contextualized problems differ. With regards to contradictions, this study suggests that East Asians and the Westerners do not differ in their dealing of logical or abstract contradictions (e.g., “P is Q and P is not Q,” or “1+1 = 2 and 1+1=3”) but their approaches differ in how they deal with psychological or contextualized contradictions (e.g., “A student, in many ways, is not a student,” or “she is shy and outgoing”).

How do East Asians deal with psychological contradictions, and how is that different from the way Westerners deal with contradictions? The biggest difference has to do with whether or not contradiction is seen as a temporary state. For East Asian dialectical thinkers...
there is nothing unnatural about things being in a state of contradiction, because according to East Asian folk epistemology (Peng & Nisbett, 1999), the nature of reality is full of contradictions (the principle of contradiction), as things are always changing (the principle of change) and everything is related to everything else (the principle of holism). Hence, dialectical thinkers' approach to contradictions is to believe that both sides of two opposing perspectives contain some truth and retain both of them. In sharp contrast, for Westerners contradiction is a temporary state and need to be resolved by one of two ways. One way of resolving contradiction is the differentiation, where individuals compares basic elements of two opposing perspectives and believes that one is right and the other is wrong. The other approach is the integration, where individuals compares basic elements of two opposing perspectives and logically integrates both perspectives. This latter approach characterizes the Western dialectical thinking, formalized by Hegel and Marx and regarded as advanced models of thinking used by old and wise (for a review, see Peng & Ames, 2001).

Peng and Nisbett (1999) have conducted several studies that empirically demonstrate that East Asians differ from Westerners in their dealing of psychological contradictions. In one demonstration, American and Chinese participants were asked whether they prefer proverbs with contradictions (e.g., "too humble is half proud") or without contradictions (e.g., "for example is no proof"). In this study, Chinese participants were found to prefer proverbs with contradictions more compared to American participants. In another study, when participants were asked to respond to scenarios of everyday life conflicts (e.g., mother-daughter value conflict), responses of Americans tended to be polarized (e.g., one side is at fault) whereas Chinese responses were much less polarized (e.g., both sides are at fault). In another study, when participants were asked to evaluate two statements that appear
inconsistent, Americans and Chinese did not differ in their plausibility rating of the statements when the two statements were presented individually. However, when the two statements were presented together, plausibility ratings of Americans became polarized (i.e., plausible statement became more plausible and less plausible one even less plausible). On the other hand, ratings of Chinese became less polarized (i.e., plausible statement became less plausible and less plausible one became more plausible).

The dialectical nature of East Asians thinking marks the profound ways in which East Asians are different from Westerners in their dealing of psychological contradictions. One important question is why East Asians, but not Westerners, have come to use the dialectical approach to contradictions. In the next section, we review some elements of East Asian cultures that might be encouraging dialectical thinking among East Asians.

East Asian Cultural Syndromes: Home of Dialectical Thinking

East Asian societies are commonly noted to be oriented toward harmony, which is encouraged and sustained by a number of social and psychological mechanisms. In this section, we review some of these mechanisms and suggest that dialectical thinking plays an essential role in some of these mechanisms.

In order to keep societies harmonious, threats to social harmony need to be detected quickly and worked upon (Lebra, 1984). One Japanese proverb often cited to illustrate this point is that “the nail that sticks up is hammered down.” One extreme ways of “hammering down” threats to social harmony would be social ostracism. Records of Japanese society document the prevalence of social ostracism, and it is documented to occur even in modern Japan (Lebra, 1976). Developmental research seems to suggest that Japanese children might be socialized with various social harmony maintenance strategies from early on. For
example, school bullying in Japan, which many social commentators see as a major problem Japanese society is facing today, seems to have the distinctive characteristic of punishing those who are perceived to be different (Miyahara, 1983) and punishing one by a group, for example by completely ignoring the child being bullied (Crystal, 1994).

East Asians’ focus on social harmony could also be seen in their daily communications. Many observe Japanese language to be consisting of very complex rules on modesty, especially the rules surrounding how people are to refer themselves depending on the context and people they are interacting with. Honorifics are a part of this. The proper use of honorifics is seen as the prerequisite to take a part in the collective life. This could be witnessed, for example, in a corporate orientation where college graduates just entering the workforce go through extensive training on the use of honorifics. Mastering honorifics is seen as one of the important distinctions between shakaijin or “social person” and “non-social person” such as students.

Individuals, especially ones who mastered the practices of modesty, are expected to downplay and even suppress their private needs and wants (Benedict, 1946; Hall & Noguchi, 1995). When they fail to do this, for example with excessive self-praises, they are perceived as immature and inconsiderate (Lebra, 1976; Minami, 1953). Hence, the proper use of modesty, in a way, works as a shield against negative perception, as it prevents individuals from being perceived as a threat to collective life (Hall & Noguchi, 1995).

Furthermore, studies on social dilemma suggest that East Asians are keenly aware of the social mechanisms that discourage socially deviant behaviors (Yamagishi, 1999). In this line of study, a small group of Japanese and American students went through several trials of allocating money either to themselves or to other members of their group, with the payment
rule as such that cooperation was rewarded only when it was matched by other members' cooperative behavior. In one condition, this payment rule was accompanied by a "punishment fund" to which participants were to allocate some portion of their money, and they were told that the least cooperative member of the group would be fined for twice the amount that the group contributed to the "fund." The findings were that Japanese became much more cooperative in the punishment condition (they allocated 75% of the money on average to the group), compared to the non-punishment condition (where they allocated only 44% to the group), while the increase of cooperation was smaller among Americans (from 56% to 76%). As Yamagishi (1999) argues, this finding suggests that collectivistic behaviors of Japanese are largely driven by their awareness of social mechanisms that punish unsocial behavior.

Cross-cultural studies on choice making show that East Asians prefer choices that would make them similar to others over choices that would make them unique. For example, in one study when American and East Asian participants were asked to choose a pen from a group of five pens consisting of two colors (e.g., three red and two blue pens), East Asians were more likely to choose a pen from the majority color group (red), while the Americans showed the opposite pattern, preferring the minority color pen (blue) (Kim & Markus, 1999). When American and Korean magazine advertisements were analyzed for their contents, Korean advertisements were found to emphasize more on such things as harmony, family integrity or conformity compared to American advertisements which emphasize more on individual benefits, personal success and uniqueness (Han & Shavitt, 1994; Kim & Markus, 1999). These studies suggest that East Asians' focus on social harmony plays an important role even in their everyday choice making.
Given that East Asians go to great lengths to value social harmony, it is not surprising to find data showing that conflicts occur less frequently in Japan (e.g., Hamilton & Sanders, 1992). Nevertheless, no matter how hard they work to avoid them, conflicts do occur even in a harmony oriented society. Once conflicts do become inevitable, however, East Asians deal with them in a way that is different from North Americans, and dialectical thinking of East Asians seems to play a particularly important role here, as reviewed below.

For Westerners, one common way of dealing with conflicts is debate. Debate is the forum where individuals are to express, exchange, justify and critique opinions making use of formal logic, with the idea being that the best decision will be made with this process. This is one of the key social practices of the Western civilization, and as such, individuals are to learn this communicative practice from early on, for example in school (Nisbett, 2003).

However, it seems debate is not the preferred method of choice for East Asians in dealing with conflicts, since debate is observed to be less frequent in East Asian societies (e.g., Becker, 1986; Minami, 1953; Nisbett, 2003). For example, Japanese corporate meetings are often observed to be for ratifying pre-reached consensus, rather than debating business matters, and a good Japanese political leader is expected to be more of a consensus builder, not someone who is a good debater or can make good decisions or possessing good personality traits, as it may be the case with American political leaders (Feldman, 1997).

Some have suggested that the reason debate is infrequent in East Asia is that public confrontations that debate seems to necessitate is something to avoid as much as possible (e.g., Becker, 1986; Minami, 1953; Nisbett, 2003). In East Asian cultures, individuals are to reflect and accommodate other's views flexibly, rather than sticking to their points. In fact, an over-insistence on one's opinions is seen as immature, and flexibility of opinions is
preferred over consistency (Fiske, Kitayama, Markus, & Nisbett, 1998; Iwao, 1997; Mizuno et al., 1992). A few psychological studies seem to support this point. For example, the belief that attitudes are to be consistent with behavior was held less strongly among Japanese compared to Australians (Kashima, Siegal, & Tanaka, 1992). Inconsistent self-concept was less predictive of subjective well-being among Koreans compared to Americans (Suh, 2002). And standard cognitive dissonance experiments fail to replicate among Japanese (Heine & Lehman, 1997; Hoshino-Brown, Zanna, Spencer, & Zanna, in press; Kitayama, Snibbe, Markus, & Suzuki, 2004).

Consistent with these findings, cross-cultures studies of conflict resolutions find that East Asians prefer methods of conflict resolutions that would allow easier restoration of harmonious relation after disputes, such as mediation and bargaining, compared to other procedures (Hamilton & Sanders, 1992; Leung, 1987). What these studies suggest is that the objective of conflict resolution in East Asian cultures is to find a way so that harmonious interpersonal relationships are preserved, which might not reach the best possible solution from the Westerners’ point of view. Hence, East Asian conflict resolutions seem to emphasize on finding the middle way solution. For this reason, dialectical thinking of East Asians, which would allow them to retain basic points of both of opposing perspectives and "save faces" of both sides, seems essential for conflict resolutions in East Asian cultures. In fact, if one adopts a non-dialectical approach to conflict resolutions in East Asia, such as debate, one side of conflicting parties is going to "lose face" because their perspective is unlikely to be honored in the final decision. As maintenance of face plays a particularly important role in East Asian cultures (Heine, in press; Ho, 1976), dialectical approach to conflict resolutions would be the approach of choice for East Asians.
As reviewed above, East Asian dialectical thinking is an integral part of East Asian cultural syndromes that emphasizes on social harmony. In recent years, a number of cross-cultural studies have been conducted on the topic of how dialectical thinking influences mental processes of East Asians. In this section, we review these studies.

In the domain of affect, a few studies have compared the relationship between positive and negative affect among North Americans and East Asians. The rationale underlying these studies is that to the extent dialectical thinkers are less reluctant to simultaneously hold positive affect (e.g., happy) and negative affect (e.g., sad), positive and negative affect might be less strongly correlated. In fact, studies have found a lower negative correlation, or even a positive correlation between positive and negative affect among Koreans and Chinese (Bagozzi, Wong, & Yi, 1999) or more generally countries with strong influence of Buddhist and Hinduism teaching, such as Thailand, Nepal, Indonesia, and India (Schimmack, Oishi, Diener, 2002) compared with Westerners. The issue of relation between positive and negative affect is a subject of much debate (e.g., Russell & Carroll, 1999; Watson & Tellegen, 1999). However, whether or not dialectical thinking of East Asians would result in a weaker correlation compared to North Americans seems independent of this debate.

Research on self-concept is another area in which implications of dialectical thinking has been investigated. Prior research on this area has shown that East Asians’ self-concept is less clear than that of North Americans (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996) and more context-specific and variable, as seen in the Twenty Statements Test (Bond & Cheung, 1983; Cousins, 1989; Kanagawa, Cross, Markus, 2001; Rhee,
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Uleman, Lee, & Roman, 1995). Choi and Choi (2002) extend these findings by focusing on self-concept flexibility. They reasoned that given the situational flexibility of East Asian self-concept and their dialectical thinking style, East Asian self-concept might be consisting of more diverse, less clearly defined, and some time even contradictory set of self-knowledge. Following this rationale, it was tested if Koreans would appear less consistent than Americans when their self-concept was assessed with two questions of opposing meanings (e.g., “how introverted are you?” and “how extraverted are you?”). The results were that Koreans’ answers were influenced more by the directionality of the questions than were Americans.

Similarly, Spencer-Rodgers, Peng, Wang, & Hou (2004) investigated the influence of dialectical thinking on self-evaluations. They compared Chinese and Americans’ responses to positive and reverse items on the Rosenberg Self-Esteem Scale and found that Chinese responses converged less. In other words, Chinese, in general, agreed less with positive items and disagreed less with reverse items compared to Americans’ more polarized responses. Moreover, dialectical thinking was found to mediate the relationship between culture and evaluative inconsistency. Wong, Rindfleish, and Burroughs (2003) extended this line of research and found a weaker negative correlation between responses to positive and reverse items in five widely used scales in marketing research from participants in Thailand and Japan compared to American participants.

To sum up, research on East Asian’s dialectical thinking not only contributes a series of fascinating findings, but also it provides a converging evidence that East Asians’ dialectical thinking has important implications in response styles, specifically with regards to consistency between responses to positively worded items and negatively worded items.
Current Research

We have reviewed East Asian cultural syndromes to better understand East Asians' response style, and we have reviewed that dialectical thinking of East Asians seem to play a particularly important role in influencing East Asian response style. In this research, we have conducted two studies to demonstrate and document East Asians' dialectical response style, defined as the tendency to give less converging responses to questions assessing the same construct with different directionality (e.g., positive and reverse items). For this purpose, in study 1 we explored the prevalence of dialectical response style in three domains, self-esteem, personality, and attitudes. Then, in study 2 we investigated the dialectical response style under the light of Differential Item Functioning (DIF) analyses, statistical procedures developed specifically to explore if individuals' item responses are influenced by their cultural membership.

Study 1: Dialectical Response Style

Overview

Previous research hints at the prevalent ways in which East Asians' dialectical thinking might be influencing their response style. One important follow up question for cross-cultural researchers is the robustness of this effect. In order to explore this point, we conducted a study to look at the dialectical response style in the domains of self-concept, self-esteem, and attitudes.

Method

Participants

One hundred and five participants completed a questionnaire. The Canadian sample consisted of 71 students (67 females and 4 males) from the University of British Columbia.
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(UBC). Of those, 38 identified themselves as of European background and 33 of Asian background. The Japanese sample consisted of 34 students (23 females and 11 males) from Kobe University. Participants in both cultures were recruited at several locations on campus, such as libraries and cafeterias, and participation was compensated with a small gift (a bar of chocolate, a movie pass, or a book store coupon).

Material

The questionnaire consisted of four scales. The Dialectical Self Scale (Spencer-Rodgers, Srivastava, & Peng, 2001) was used as a benchmark of participants’ dialectical thinking. Sample items from this scale include “I always try to be the same around my family as I am around my friends,” “when I hear two sides of an argument, I often agree with both,” and “I believe my habits are hard to change.” The rest of the questionnaire consisted of the Rosenberg Self-Esteem Scale, personality items adapted from the NEO-PI, and an attitude measure which consisted of 16 pairs of statements on various topics (see Appendix A).

All the scales used in the questionnaire included some positively worded items and some reverse scored items. In particular, five positive and reverse items assessed self-esteem, two positive and two reverse items assessed each of the big five factors in personality, and the attitudes were measured with 16 pairs of opposing statements.

In the attitude measure, the scale made use of an unipolar response format (5 point scale ranging from “not at all agree” to “strongly agree”) as well as a bipolar response format (11 point scale ranging from “strongly disagree”, “neutral”, “to strongly agree”). Hence, each participant evaluated eight pairs of statement with the unipolar format and eight pairs with the bipolar format, with the order being randomized. Russell and Carroll (1999) have
suggested that the bipolar format is more sensitive in detecting bipolarity of psychological constructs than the unipolar format. In this study, both of these formats were included for exploratory purposes.

**Translation of Materials**

The original English questionnaire was translated into Japanese by a bilingual research assistant, and another bilingual checked the translation to ensure comparability and equivalence in meaning. Attitudes measures were modified slightly in Japanese version for some of the statements about politics and local events (e.g., Paul Martin, Canadian prime minister to be at the time this study was conducted, was replaced with Naoto Kan, the leader of the largest minority party in Japan).

**Results**

**Comparability of Samples**

A significant age difference emerged among the three cultural groups, $F(2, 102) = 6.47, p < .01$. The Canadian sample ($M = 20.95$ and $M = 20.21$ for European-Canadians and Asian-Canadians, respectively) was significantly younger than the Japanese ($M = 22.38$). In order to rule out the possibility that the cultural analyses are compromised by age differences, age was correlated with all the key dependent variables. Age was significantly correlated with one variable, and age was entered as a covariate for analysis of that variable.

The Japanese sample consisted of 32.3% males ($n = 11$), compared to 7.9% ($n = 3$) for the European-Canadians and 2.9% ($n = 1$) for the Asian-Canadians, and these proportions were significantly different ($\chi^2(2) = 13.75, p < .001$). Given this difference in the proportion of gender across samples, we have carried out all the analyses first only with females and
then on the gender collapsed dataset, and the results are footnoted when these two analyses yielded different results.

Dialectical Self Scale

An ANOVA on the dialectical self measure revealed a significant cultural difference, replicating the previous finding (Spencer-Rodgers et al., 2004), $F(2, 98) = 6.60, p < .01$. Tukey’s post-hoc comparisons, which were used throughout the analyses following ANOVAs, revealed that Japanese participants ($M = 4.16, SD = .70$) were significantly more dialectical compared to European-Canadians ($M = 3.61, SD = .59$). Asian-Canadians ($M = 3.83, SD = .60$) did not differ significantly from the other two groups. Results from the main analyses are reported in Table 1.

Indices of Dialectical Response Style

Prior studies have introduced a few different ways of quantifying dialectical thinking, including correlation between positive and reverse items (Bagozzi et al., 1999; Schimmack et al., 2002; Wong et al., 2003), absolute differences (Choi & Choi, 2002), and indices of ambivalence (Spencer-Rodgers et al., 2004; in press).

In the current research, we have selected the indices of ambivalence, following Spencer-Rodgers et al. (2004; in press). In order to calculate ambivalence, responses are first categorized as either the “dominant” response (the larger of the two) or “conflicting” response (the smaller of the two). For example, if one’s response is 7 on measure of shyness and 2 on measure of outgoingness, then shyness is the dominant response and outgoingness is the conflicting response. Then, a formula prescribes how these scores should be computed. There are several different models on how the scores be computed (Priester & Petty, 1996). Among these models, we have selected the Similarity Intensity Model (SIM),
Negative Acceleration Model (NAM), and Positive Acceleration Model (PAM), following Spencer-Rodgers et al. (in press). Ambivalence is calculated by the formula of $3S - L$ in the case of SIM, where $S$ is the smaller value and $L$ is the larger value. Hence, if a participant’s response was 7 on shyness and 2 on outgoingness, then $S=2$, $L=7$, and $SIM=1$. The formulas for NAM is $(2S + 1) / (S + L + 2)$. Hence, NAM was .45 for the above example. The formula for PAM is $S^2 / L$, and PAM is .57 in this case. For all indices, larger values indicate greater ambivalence.

Rosenberg Self-Esteem Scale

Each participant’s responses to positively worded items (five items) and negatively worded items (five items) were calculated separately and entered into the formulas of ambivalence to form SIM, NAM, and PAM indices of ambivalence.

First, an ANOVA was performed on SIM scores. An ANOVA revealed a significant cultural difference, $F(2, 100) = 6.01, p < .01$. The SIM score was smaller among European-Canadians ($M = 2.39, SD = 3.71$) compared to Asian-Canadians ($M = 4.06, SD = 4.50$) or Japanese ($M = 5.53, SD = 3.02$). The post hoc comparisons revealed that cultural difference was significant between European-Canadians and Japanese. This finding replicates previous findings (Spencer-Rodgers et al., 2004).

Next, the mediating effect of dialectical thinking was explored. We used an ANCOVA for this purpose, and the scores from the Dialectical Self Scale were entered as a covariate. An ANCOVA revealed that when dialectical thinking was matched on across cultures, cultural differences in ambivalent responses dropped to marginal significant level, $F(2, 100) = 2.59, p = .08$, which shows the mediating role of dialectical thinking, albeit weakly.
Two other indices of ambivalence, NAM and PAM, yielded very similar results. Cultural differences were significant, $F (2, 100) = 6.90, p < .01$ for NAM and $F (2, 100) = 5.84, p < .01$ for PAM, and the difference became smaller when dialectical thinking was controlled for, $F (2, 100) = 3.27, p = .04$ for NAM and $F (2, 100) = 2.44, p = .09$ for PAM.

**Personality**

The same series of analyses were carried out on the measures of personality, which consisted of four items (two positive and two reverse items) assessing each of the big five factors, and the analyses were performed on the aggregated score.

Consistent with the self-esteem data, an ANOVA performed on SIM revealed a significant cultural difference, $F (2, 100) = 7.02, p < .001$. The SIM was smaller among European-Canadians ($M = 2.91$, $SD = 1.65$) compared to Asian-Canadians ($M = 4.62$, $SD = 2.34$) or Japanese ($M = 3.55$, $SD = 1.68$). The post hoc comparisons revealed that cultural difference was significant between European-Canadians and Asian-Canadians. The mediational effect of dialectical thinking, however, was not found. Even after controlling for the level of dialectical thinking, cultural differences in SIM scores persisted, $F (2, 100) = 6.46, p < .01$. NAM and PAM yielded very similar results in that ANOVA revealed significant cultural differences ($ps < .01$), but mediational role of dialectical thinking was not supported.

**Attitudes**

Ambivalence scores were calculated between evaluations of two statements for all 16 pairs. Each individual evaluated half of these statements (i.e., eight pairs of statements) by the unipolar format and the other half by the bipolar format with the order being randomized.
The order of response formats, however, did not interact with culture (Fs < 1 for SIM, NAM, and PAM). Hence, the data was collapsed for the order.

An ANOVA performed on the SIM scores obtained from the unipolar response format revealed significant cultural differences, $F(2, 94) = 3.28, p < .05^1$. The SIM value was smaller among European-Canadians ($M = 1.77, SD = .91$) compared to Asian-Canadians ($M = 2.67, SD = 1.95$) or Japanese ($M = 2.20, SD = 1.18$). The post hoc comparisons revealed that the cultural difference was significant between European-Canadians and Asian-Canadians. Furthermore, this cultural difference became non-significant when dialectical thinking was entered as a covariate in an ANCOVA, $F(2, 93) = 2.06, \text{ ns}$, supporting the mediational role of dialectical thinking. The similar patterns of results were found with PAM. An ANOVA found significant cultural differences, $F(2, 94) = 3.89, p < .05^2$, and the mediating role of dialectical thinking was also found, $F(2, 93) = 1.02, \text{ ns}$. However, the ambivalence calculated by NAM did not reveal significant cultural difference, $F(2, 94) = 1.99, \text{ ns}$.

In contrast, all three indices of ambivalence from the bipolar format did not reveal significant cultural differences (Fs < 1). A theoretical distinction between the bipolar and unipolar format is that while the bipolar format makes people think about the given concept with its bipolar opposite, the unipolar format does not necessarily do so (Russell & Carroll, 1999). To the extent that cultural differences were found for the unipolar formats but not for the bipolar format, the finding implies that it is the bipolar format’s design of making people

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1 When the analysis was performed only on females, this cultural difference was marginally significant, $F(2, 79) = 2.74, p = .07$.
2 When the analysis was performed only on females, this cultural difference was marginally significant, $F(2, 79) = 2.49, p = .09$. 

entertain the opposites that made dialectical thinkers less dialectical. In other words, it seems like with the unipolar response format, the opposites were less salient to dialectical thinkers, and this had resulted in their less converging responses.

Discussion

The purpose of study 1 was to see the evidence of dialectical response styles in the domains of self-esteem, personality, and attitudes. With self-esteem, the evidence of dialectical response style was clearly captured. Responses to positive items and negative items converged less for Japanese and Asian-Canadians compared to European-Canadians. Moreover, when individual’s dialectical thinking (operationalized by their score from the Dialectical Self Scale) was controlled for, the cultural differences in dialectical response style dropped to marginally significant. With personality, significant cultural differences in support of dialectical response style were found, though mediating role of dialectical thinking was not supported.

Attitude measure yielded interesting results. With the unipolar response format, cultural differences in dialectical response style were captured, in that Japanese and Asian-Canadians responded in less converging manner compared to European-Canadians. However, with the bipolar format, where the opposing construct was presumably more salient, no significant cultural difference was found. In sum, study 1 found strong evidence for dialectical response style in the domains of self-esteem and attitude and somewhat weaker evidence for the domain of personality.

Study 1 focused on how cultural differences in dialectical thinking are manifested in response styles. One another way of investigating how dialectical thinking might be influencing response style would be to investigate how individuals’ response to some specific
items on a questionnaire are predictive of their responses to some other items on the same
test. Specifically, the findings from study 1 suggest that dialectical thinkers' responses to positive items on a questionnaire would be less predictive of their responses to reverse items, compared to non-dialectical thinkers. Statistical procedures well suited to test this idea is the differential item functioning (DIF) analysis.

The DIF analyses developed in the context of increasing societal concerns for fair comparisons of differences in cognitive abilities between White and minority students (Angoff, 1993). An important task in the field of psychometric was to develop a procedure to determine if a measurement of interest would yield fair comparisons across groups, as a measurement that unfairly favors one group over another has huge undesirable implications in such things as selection, placement, and advancement (Clauser & Mazor, 1998).

Emerging out of this background, DIF investigates fairness of measurements across groups by testing if group (e.g., culture) differences persist after groups are matched on the construct the measurement intends to capture (e.g., Clauser & Mazor, 1998; Holland, & Wainer, 1993; Zumbo, 1999). If the measurement is fair, two groups that are matched on the construct of interest, for example intelligence, should do equally well in that measure of intelligence. On the other hand, if the measurement is unfair, two groups that were matched on intelligence would not do equally well in that measurement of intelligence (e.g., minority students underperforming compared to white students even after their IQ is matched on).

One concrete example of the item exhibiting DIF is the following verbal analogy problem from SAT:
It turned out that this item unfairly favors males compared to females. That is, males at all level of verbal ability were more likely to answer this item correctly compared to females of matched verbal ability (Dorans & Kulick, 1983). The subsequent examinations concluded that the reason this item is biased is because the analogy requires the knowledge of hunting, which males had better knowledge of in general (and irrelevant of verbal ability that SAT intends to capture).

In recent years, the DIF analyses have seen increasing applications in the field of cross-cultural research as well, as the DIF analyses shed new lights on to the age old issue of cross-cultural measurement equivalence (e.g. van de Vijver & Leung, 1997). For example, the DIF analyses have been used to investigate measurement equivalence of NEO Personality Inventory administered to Americans and Filipinos (Huang, Church, & Katigback, 1997), on the thematic apperception test performed on German and Zambian students (Hofer & Chasiotis, 2004), on the Satisfaction with Life Scale administered to Americans and Chinese (Oishi, 2003), and attitude toward mental health measure administered to Americans, French, and Germans (Ellis & Kimmel, 1992).

DIF and Dialectical Response Style

How could the dialectical response style be tested in the framework of the DIF analyses? Consider the following hypothetical scenario. Suppose that cross-cultural study on happiness is conducted using a two item scale (item 1 “how happy are you?” and item 2 “how unhappy are you?”). To the extent these two items are tapping the same construct,
individuals from two different cultures who are matched on their level of happiness should respond to these two items in a similar manner. However, dialectical thinkers’ responses to these two items should converge less compared to responses given by non-dialectical thinkers. In other words, even when individuals are matched on their responses to item 1, differences would emerge in their responses to item 2, as a function of individual differences in dialectical thinking. Hence, in this example item 2 would become a DIF item when responses to item 1 are controlled. Similarly, when responses to item 2 are matched on across individuals, item 1 should become a DIF item. Study 2 explored this possibility with the Rosenberg Self-Esteem Scale.

**Study 2: DIF Analyses for Dialectical Response Style**

**Method**

**Dataset**

A large dataset on the Rosenberg Self-Esteem Scale from 3219 individuals was compiled. Responses to positive and reverse items were calculated separately to form positive self-esteem score and negative self-esteem score. The sample consisted of 1739 Japanese and 1480 European-Canadians. Japanese sample consisted of 57.3% females with a mean age of 19.54. European-Canadian sample consisted of 62.1% females with a mean age of 21.08. The data was collected in 18 different cross-cultural studies conducted between 1992 and 1997.

**DIF Analyses**

Several methods for DIF analysis are available. Some of the more frequently used methods include the Mantel-Haenszel statistic, item response theory based (IRT) analyses, and the ordinal logistic regression (OLR) approach. For a comprehensive review on
Research on the DIF analyses has traditionally focused on data from dichotomous items, and relatively less research is available on polytomous item such as Likert scale, though several methods have been proposed in recent years (e.g., Clauser & Mazor, 1998; Wainer, Sireci & Thissen, 1991; Zumbo, 1999).

The current study deals with the data from Likert scale, and we have decided to use two statistical procedures: ANCOVA and the ordinal logistic regression (OLR). ANCOVA is one commonly used statistical method to match attributes of interest across groups. However, application of ANCOVA to DIF analysis has been virtually non-existent (see Sireci, Harter, & Yang (2003) for why this might be the case). In one recent study, nonetheless, Sireci et al. (2003) demonstrated the utility of ANCOVA in DIF analysis, in that ANCOVA yielded almost perfectly converging results to the results from OLR, which is one of the frequently used procedures for DIF analyses. One distinctive advantage of ANCOVA is its ease of implementation and great communicability particularly relative to other procedures for the DIF analyses. For these reasons, we selected ANCOVA.

However, given the tenuous nature of ANCOVA for DIF analysis, we have also conducted the analyses with OLR. Unlike ANCOVA, the OLR approach developed by Zumbo (1999) is specifically designed for DIF analysis, and one of frequently used procedures, especially for analyzing polytomous data (e.g., Crane, van Belle, & Larson, 2004; Gelin, Carleton, & Smith, 2004; Sireci et al., 2003).

In essence, the OLR approach is a 3-step process with one variable added at each step to see if adding a variable better predicts the item responses, specifically by predicting the
probability of endorsing a certain response in any given item. The three steps in OLR
work as following. In the first step, a matching variable (e.g., ability, intelligence, self-
esteeem, etc.) is entered into the regression equation. Next, group membership variable is
added to the equation. Finally, the interaction between culture and matching variable is
added to the equation. Each step yields a Chi-squared value as well as R-squared values as
indices of how well each model fits the data. These indices are to be compared at each step
in order to analyze whether the addition of new variable (i.e., group membership at step 2 or
the interaction term at step 3) significantly improved the fit of model. When adding a group
membership to the regression equation in predicting responses to a certain item does not
improve the model fit (i.e., the difference between the Chi-squared value obtained from step
2 and step 1 is not significantly different), then it indicates that the matching variable alone
can sufficiently account for the variance; hence the item does not have DIF. On the other
hand, item has DIF if adding a group membership to the equation significantly improves the
model fit (Zumbo, 1999).

This type of DIF, observed when adding group membership to the equation
significantly increases the model fit, is called uniform DIF, and this is to be distinguished
from non-uniform DIF. Non-uniform DIF is present, if adding an interaction term between
group membership and matching variable to the equation (step 3) significantly improves the
model fit. Thus, when non-uniform DIF is present, (a) the probability of endorsing a specific
response on an item differs across the groups, but (b) the direction or magnitude of the
difference is not consistent across the continuum of the matching variable (e.g., ability,
intelligence, self-esteem, etc) (Zumbo, 1999).
In the context of dialectical response style, as dialectical thinkers are likely to provide less converging responses to positive and reverse items across the continuum, uniform DIF is expected. In other words, we predict that Japanese people at any level of self-esteem will provide less converging answers compared to Canadians, due to their dialectical response style. Hence, when individuals are matched on their positive self-esteem (self-esteem measured with positive items), reverse items on the Self-Esteem Scale should exhibit larger DIF, as dialectical thinkers would provide less converging responses compared to non-dialectical thinkers. Conversely, when individuals' are matched on their negative self-esteem (self-esteem measured with reverse scored items), positive items on the scale should exhibit larger DIF.

As the DIF analyses are performed on the large dataset, significance test becomes somewhat irrelevant. For this reason, all DIF analyses in this study report the effect size. For ANCOVA, the eta-squared value ($\eta^2$) served as the index of effect size (Sireci et al., 2003), and for OLR, the r-squared value ($R^2$) served the same purpose (Zumbo, 1999). Both of these indices indicate the proportion of variance accounted by the model, thus ranges from 0 to 1, and previous research shows that these indices correlate very highly ($r = .96$) (Sireci et al., 2003). In terms of Cohen’ (1992) criteria for effect size, $\eta^2$ or $R^2$ of .02 is considered “small” (i.e., equivalent of $d = .2$), .13 is considered “moderate” (i.e., $d = .5$) and .26 is considered “large” (i.e., $d = .8$). All analyses were conducted in SPSS.

Results

Matching Variable

As noted earlier, positive and reverse items in the scale were calculated separately to form positive and negative self-esteem score, respectively. Before these scores are entered in
the DIF analyses, however, the scores need to be “purified,” as it has been shown empirically that DIF analysis without purification of the matching variable inflates the probability for Type 1 error (Camilli & Shepard, 1994; Dorans & Holland, 1993; Holland & Thayer, 1988; Zumbo, 1999). To “purify” the matching variable, it is recommended that the raw score be entered in the DIF analyses first to flag out DIF items, and the matching variable be reformed based on the items that did not have DIF. In this study, the criterion for DIF was set at the effect size ($\eta^2$ for ANCOVA or $R^2$ for OLR) of greater than .07. This criteria falls in the range of between “small” and “medium” effect size in Cohen’s (1992) terminology, and it follows the considerations of prior DIF analyses (Jodoin & Gierl, 2001; Sireci et al., 2003).

First, ANCOVA was conducted. Raw positive self-esteem score was entered as a covariate, culture as a group variable, and responses to five positive items were analyzed for DIF. Table 2 reports $\eta^2$ for all five items. No item was flagged as having DIF, since the $\eta^2$ for all five items was smaller than .07. The same analysis was conducted with OLR. Raw positive self-esteem and culture were entered in the regression equation with the responses to five positive items being the criterion variables. Table 2 also reports $R^2$ from this analysis. Again no item was flagged for DIF, since $R^2$ was below .07 for all five positive items. As no item was flagged out for DIF, raw positive self-esteem became a purified positive self-esteem.

Similarly, screening for DIF was conducted on the five negative items. With ANCOVA, raw negative self-esteem score was entered as a covariate, culture as a group variable, and response to the five negative items were analyzed. With OLR, raw negative self-esteem and culture were entered in the regression equation with the responses to five
negative items being the criterion variables. Table 3 reports the effect sizes. Both ANCOVA and OLR identified item 3, 5, and 9 to have DIF. Thus, purified negative self-esteem is consisting of responses to item 8 and 10. It should be noted that effect size indices from ANCOVA and OLR for two screening analyses converged perfectly in flagging DIF items, and the correlation between two indices was very high, $r(10) = .96$.

**Positive Self-Esteem As a Matching Variable**

The dialectical response hypothesis predicts that even when positive self-esteem is matched on, there would be cultural differences in responses to five negative items. The hypothesis also predicts no cultural difference for responses to five positive items when individuals are matched on their positive self-esteem, as the dialectical response style pertains only to items of opposing directionality.

DIF analyses were conducted with ANCOVA and OLR to test this hypothesis. For both procedures, purified positive self-esteem was entered as the matching variable, culture as a group variable, and responses to all ten items as criterion variables. The results are reported in Table 4. The $\eta^2$ from ANCOVA ranged from .001 to .055. The mean $\eta^2$ for the five positive items was .023, and for the five negative items, it was .031. As $\eta^2$ in this context indicates the variance of item responses accounted by culture, it means that for positive five items, culture accounted for 2.3% of the total variance whereas it accounted for 3.1% of the variance of responses to negative items. The difference ($\eta^2 = .008$) was small, but it was in the expected direction, in that the proportion accounted by culture was higher for negative items compared to positive items when cultural differences in positive self-esteem was controlled for.
The same analyses were conducted with OLR, with purified positive self-esteem and culture entered in the regression equation, and responses to all ten items as the criterion variables. $R^2$ ranged from .003 to .072. One item (item 8) met the criteria for DIF (i.e., $R^2$ greater than .07). When $R^2$ was correlated with $\eta^2$ from ANCOVA, the correlation was very low, $r(10) = .19$, ns. However, as mentioned earlier OLR approach simultaneously analyzes for the uniform and non-uniform DIF, unlike ANCOVA, and the obtained $R^2$ consists of combined effect size for the uniform-DIF and non-uniform DIF. Hence, $R^2$ was analyzed further to obtain separate estimate for the uniform DIF and non-uniform DIF. To obtain the uniform DIF effect size index, $R^2$ obtained from step 1 (matching variable alone in the regression equation) is subtracted from $R^2$ of step 2 (matching variable and culture in the equation). And to obtain the non-uniform DIF effect size index, $R^2$ obtained from step 2 is subtracted from $R^2$ of step 3 (matching variable, culture, and the interaction between two in the equation) (Zumbo, 1999).

In turned out that the uniform DIF effect sizes obtained this way ranged from .002 to .057, and no item met the criteria for DIF (Table 4). Furthermore, $R^2$ for the uniform DIF correlated highly with ANCOVA's indices, $r(10) = .69$, $p<.05$. With regard to item 8, which was initially flagged as having DIF, this component analysis revealed that it is the case of non-uniform DIF. Mean uniform-DIF $R^2$ obtained from OLR for five positive items was .014, and for five negative items, it was .025. As $R^2$ indicates the variance of item responses accounted by culture, it means that for positive five items, culture accounted for about 1.4% of the total variance for positive five items whereas it accounts for 2.5% of the variance of
negative five items. Again the difference ($R^2 = .011$) is small, but it is in the expected direction.

**Negative Self-Esteem As a Matching Variable**

The dialectical response style hypothesis predicts that even after negative self-esteem is matched on, there would be cultural differences for responses to five positive items. The hypothesis also predicts no cultural difference for responses to five negative items when individuals are matched on their negative self-esteem.

The DIF analyses were conducted this time with purified negative self-esteem entered as a matching variable. The results are reported in Table 5. The $\eta^2$ from ANCOVA and $R^2$ from OLR correlated perfectly, $r(10) = 1.00$. The mean effect size for five positive items for ANCOVA was .206 and .196 for OLR. The means for five negative items were .104 and .089 for ANCOVA and OLR, respectively. Hence, the DIF analyses revealed that culture accounts for about 20% of the variance of item response for positive items, even after individuals’ are matched on their negative self-esteem, whereas culture accounts much less, about 10% of the variance, for negative items. This is consistent with the dialectical response style hypothesis. One unexpected finding from this analysis was that average DIF effect size of all ten items was much larger when negative self-esteem was matched on ($\eta^2 = .155$ and $R^2 = .142$) than when positive self-esteem was matched on ($\eta^2 = .027$ and $R^2 = .019$). Why this might have been the case is speculated in the subsequent section.

**Discussion**

The objective of study 2 was to capture the dialectical response style under the framework of DIF analyses. The hypothesis predicted that cultural difference would be observed for responses to positive (negative) items even after individuals are matched on
their negative (positive) self-esteem, due to the dialectical response style. Two sets of DIF analyses were conducted to test this hypothesis: one with purified positive self-esteem serving as the matching variable and the other in which purified negative self-esteem served as the matching variable.

The results supported the hypothesis in both cases. When positive self-esteem was controlled for, DIF indices were on average larger for the negative items compared to the positive items, though the difference ($\eta^2 = .008$ and $R^2 = .011$) was very small. Conversely, when negative self-esteem was controlled for, DIF indices were much larger for the positive items compared to the negative items (the difference was $\eta^2 = .102$ and $R^2 = .107$).

One unexpected finding was that DIF indices were in general (i.e., both for positive and negative items) larger for the second analysis where negative self-esteem was matched on, compared to the first analysis, where positive self-esteem was matched on. What this suggests is that regardless of the directionality of the item being investigated, large cultural difference emerged when individuals are matched on their negative self-esteem.

There are three possibilities for this. The first possibility is the cultural difference in sensitivity to conversational norm (Haberstrogh, Oyserman, Schwarz, Kuhnen, & Ji, 2002). This theory proposes that those with interdependent view of self are more sensitive of conversation norm, such as avoidance of requesting or providing redundant information. Thus, when those with interdependent self face two questions of similar meaning, they are likely to provide less converging responses, as they perceive that providing the same answers to redundant questions would not be informative to the person who asked the questions (e.g., experimenter). Consistent with this theory, in a study where two questions of very similar meaning ("how satisfied are you with your studies?" and "how satisfied are you with your
life?') were asked, Chinese compared to German participants provided less converging response. In the current research, it might have been the case that Japanese, who are presumably more interdependent and sensitive to the conversational norm, provided less converging responses compared to European-Canadians because they perceived each item on the scale to be asking somewhat different information. Consistent with this theory, the scale's internal consistency (Cronbach's alpha) was lower among Japanese (alpha = .77) compared to Canadians (alpha = .88). However, this account does not explain why DIF indices were larger when negative self-esteem was controlled than when positive self-esteem was controlled.

Another possibility would be that responses to reverse items might have been influenced by one's regulatory focus. Cross-cultural research on regulatory focus finds that East Asians are in general more prevention oriented, and their regulatory focus is guided more by pursuit for the "ought" and presence or absence of negative outcomes, whereas North Americans are more promotion oriented, and their focus is guided more by pursuit for the "ideal" and presence or absence of positive outcomes (Elliot, Chirkov, Kim and Sheldon, 2001; Higgins, 1996; Lee, Aaker & Gardner, 2000). In responding to a questionnaire, it might have been the case that prevention oriented Japanese were less likely to endorse negative items (less likely relative to what their positive responses would predict), because their regulatory focus is on avoidance of negative outcomes. In other words, it might have been the case that prevention oriented Japanese provided less converging responses to positive and reverse items on a questionnaire, due to their focus of avoiding negative outcomes. Hence, this possibility would predict the pattern of results that the dialectical response style predicts, namely that DIF indices are larger for positive items when negative
self-esteem is controlled, and the DIF indices are larger for negative items when positive self-esteem is controlled. However, it does not explain why DIF indices for both positive and negative items were on average larger when negative self-esteem was controlled.

Lastly, it might have been the case that negative self-esteem was contaminated by the negativity bias. Prior research has shown that some individuals for example those who have difficulty comprehending reverse wording, such as small children, provide inappropriate responses to reverse items on questionnaires (e.g., Horan, DiStefano & Motl, 2003; Marsh, 1986; 1996). It might have been the case that the negativity bias was an issue for either Japanese or Canadians (but not for both). Consistent with this possibility, internal consistency (Cronbach’s alpha) of five negative items was lower among Japanese (alpha = .67) compared to Canadians (alpha = .80). However, inconsistent with the negativity bias account, Japanese’ internal consistency for positive items was also lower than Canadians’ (alpha = .68 for Japanese and .82 for Canadians). Hence, this analysis shows that both positive and negative items had lower internal consistency among Japanese compared to Canadians, which the negativity bias account can not explain.

Finally, it should be noted that the observed discrepancy in DIF effect sizes does not necessarily discount the dialectical response style hypothesis, which pertains only to subset of items in the questionnaire (i.e., positive items have larger DIF when negative self-esteem is matched on or negative items have larger DIF when positive self-esteem is matched on). Thus, the finding that DIF indices are in general larger when negative self-esteem is matched neither confirms or disconfirms the dialectical response style hypothesis.
General Discussion

The field of cross-cultural research has accumulated a large body of evidence regarding cross-cultural variations in response styles. The current research took the perspective that response style is influenced importantly by one's cultures. Taking this perspective, we have focused on East Asian cultures particularly Japanese and reviewed elements of the culture that might be playing an important role in shaping East Asian response style.

One such characteristic that is particularly profound is dialectical thinking. Several studies have demonstrated the dialectical nature of East Asians’ thinking (Peng & Nisbett, 1999), as well as its implications to cross-cultural understanding of self-concept (Choi & Choi, 2002; Spencer-Rodgers et al., in press), well-being (Spencer-Rodgers et al., 2004), and affect (Bagozzi et al., 1999; Schimmack, et al., 2002). In addition to contributing to fascinating set of findings, these studies have also shed some lights onto how dialectical thinking might be influencing individuals’ response style.

In the current research, study 1 tested and captured the dialectical response style of Japanese and Asian-Canadians in the domains of self-esteem, personality and attitudes. The results showed that Japanese and Asian-Canadians respond to positive and reverse items in less converging manner compared to European-Canadians. Study 2 introduced the DIF analyses to the study of dialectical response style. We have found that even after individuals are matched on their positive self-esteem, cultural differences in negative self-esteem persist. Conversely, we have found that even when negative self-esteem is matched on, cultural differences in positive self-esteem persist.
Implication

Given the findings from this research, it might be worthwhile to think of the extent to which the dialectical response style might have been influencing the findings in cross-cultural survey research. This research has found that somewhere between 2-20% of the variance of item responses in a questionnaire that includes reverse items are attributable to the dialectical response style, when cross-cultural comparisons involve East Asians and Canadians. Given this finding, it might be worthwhile to revisit the past cross-cultural questionnaire research and investigate how much of the findings could actually be attributable to the dialectical response style. A meta-analysis would be a helpful strategy for this purpose. It could be the case that non-negligible portion of data obtained in the past cross-cultural survey research is confounded by East Asians’ dialectical response style.

Another implication of the current research would be the use of reverse items in future cross-cultural research. In the field of scale constructions, inclusion of reverse items has been the standard procedure as reverse items can easily overcome the problems posed by the acquiescence bias (Paulhus, 1991). However, this research has shown that including reverse items is a problematic practice in cross-cultural research, as due to the dialectical response style, East Asians’ responses to positive and reverse items are going to converge less compared to North Americans’ responses. To illustrate how this is problematic, imagine a following scenario. Suppose some psychological construct is studied by two cross-cultural surveys, one using a scale that includes reverse items and one that does not. Based on the findings from the current research, one could predict that the dialectical response style becomes an issue for the scale that includes reverse items but not for the other. For this reason, two studies might yield somewhat different results; it could be that cultural difference
Dialectical Response Style

found in one study becomes inflated in the other study due to the dialectical response style, or it could be that the cultural difference found in one study diminishes in the other.

How could researchers overcome this problem? One recommendation comes from the developmental research on the negativity bias, in which young children or children with poor reading ability were found to have difficulty understanding questions being asked in the reverse direction and provide inconsistent responses, compared to their responses to positive items (Marsh 1986). In this work, Marsh (1986) recommends that when the questionnaire is used on young children, either reverse items be dropped entirely or that they be removed from the scoring. Marsh’s recommendation might be a good starting point in thinking about how to overcome the problems of the dialectical response style in cross-cultural survey research.

One final implication of this research is to add the cautionary note against the use of survey method in cross-cultural research. Survey method’s limitations as well as vulnerability to various issues such as item content, response bias, conversational norm, reference group effect have been clearly illustrated in a recent meta-analysis of individualism-collectivism studies (Oyserman et al., 2002). Most of the studies reviewed in this meta-analysis involved the survey method, and some of the findings from the meta-analysis, for example Japanese are more individualistic than Americans, contradicted with findings obtained from studies that used non-survey methods, such as behavioral measure (e.g., persistence, reaction time, experience sampling) (Kitayama, 2002).

In an attempt to reconcile these seemingly paradoxical findings, Kitayama (2002) recommends that data from survey research be trusted only when it converges with the data obtained from some other methodologies, as many significant developments in the field of
cultural and cross-cultural psychology have based on non-survey methods. The similar concern is voiced by a number of other researchers (e.g., Fiske, 2002; Heine et al., 2002; Peng, Nisbett & Wong, 1997). The dialectical response style of East Asians adds another reason to worry about the validity of cross-cultural survey method and another incentive to check the finding from survey research with findings from other methodologies.
Dialectical Response Style 40

Reference


comparisons of rating scales among east Asian and north American students.

Psychological Science,
6, 170-175.

Psychology Bulletin, 28, 1508-1517.


item functioning in the CASI. Statistics in Medicine, 23, 241–56.

Deviant Behavior, 15, 241–266.

standardization. In P. W. Holland, & H. Wainer (Eds.), Differential item
functioning (pp. 355-368). Hillsdale, NJ:

Dorans, N. J., & Kulick, E. (1983). Demonstrating the utility of the standardization approach
to assessing unexpected differential item performance on the Scholastic Aptitude


Dialectical Response Style


Kim, H., & Markus, H. R. (1999). Deviance or uniqueness, harmony or conformity? A


and issues in practice.] *Seikatsu Shidou 319*.


Unpublished manuscript. University of Minnesota.

Oyserman, D., Coon, H., & Kemmelmeier, M. (2002). Rethinking individualism and
collectivism: Evaluations of theoretical assumptions and meta-analyses.
*Psychological Bulletin, 128*, 3-72.


Baltes (Eds.), *International Encyclopedia of the Social and Behavioral Sciences.*

American Psychologist, 54, 741-754.


American Psychologist, 55, 1067-1068.

Perspectives form three traditions. In D. Matsumoto (Ed.), The handbook of culture 
and psychology. Oxford University Press.

across cultures and possible solutions. Psychological Methods, 2, 329-344.

positive and negative bases of attitudes to subjective ambivalence. Journal of 
Personality & Social Psychology, 71, 431-449.

and ethnic identities in individualistic and collectivistic cultures. Journal of 
Personality and Social Psychology, 69, 142-152.


Psychological Bulletin, 125, 3-30.

pleasant emotions and unpleasant emotions: Asian dialectic philosophies or

an explicit middle point in cross-cultural surveys. International Journal of
Organizational Analysis, 6, 218-230.

Attitude Survey Across Languages, Cultures, and Administration Formats.


Soueif, M. I. (1968). Extremeness, indifference and moderation response sets: a cross-

Spencer-Rodgers, J. & Peng, K. (in press). The dialectical self: Contradiction, change,
and holism in the East Asian self-concept. Culture and Social Behavior: The Tenth

differences in self-perception: Contradiction, change, and holism in the

East-West differences in psychological well-being. Personality and Social
Psychology Bulletin.

University of California, Berkeley. Unpublished data.


Appendix A: Statements in the Attitude Measures

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Counter-position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paul Martin would make a good prime minister.</td>
<td>Paul Martin would not be a very effective as a prime minister.</td>
</tr>
<tr>
<td>1*</td>
<td>Naoto Kan would make a good prime minister</td>
<td>Naoto Kan would not be a very effective as a prime minister.</td>
</tr>
<tr>
<td>2</td>
<td>It is hot now.</td>
<td>If somebody came to this room right now, that person would probably think it’s cold.</td>
</tr>
<tr>
<td>3</td>
<td>Abortion should not be done under any circumstances; it is just morally wrong.</td>
<td>The decision of whether or not to have a baby should be completely up to the people involved.</td>
</tr>
<tr>
<td>4</td>
<td>Canada should play more active role in international political scenes.</td>
<td>Being an active player in international political setting should not be one of the priorities for Canadian government.</td>
</tr>
<tr>
<td>4*</td>
<td>Japan should play more active role in international political scenes.</td>
<td>Being an active player in international political setting should not be one of the priorities for Japanese government.</td>
</tr>
<tr>
<td>5</td>
<td>Having a large number of students enrolled makes UBC a great school.</td>
<td>A smaller student population would be better for UBC as an academic institution.</td>
</tr>
<tr>
<td>5*</td>
<td>Having a large number of students enrolled would make Kobe University a great school.</td>
<td>A smaller student population would be better for Kobe University as an academic institution.</td>
</tr>
</tbody>
</table>
6 Smaller class size is critically important for elementary school students.

7 Vancouver is a very good place to live.

7* Kobe is a very good place to live.

8 The severe wildfire occurred this year was due to bad luck, and it won’t happen again for years to come.

8* The earthquake happened in Kobe was due to bad luck, and it won’t happen again for years to come.

9 Vancouver-Whistler Olympics in 2010 would help vitalize the city of Vancouver.

9* Luminarie has been vitalizing the city of Kobe.

10 Benefits of liberal arts education at university level should be more widely recognized.

11 Overall, the globalization process, however imperfect it might be, is a good thing for everybody on the earth.
Immigrants are the force that makes the Canadian economy going.

Immigrants are the force that makes the Japanese economy going.

Vancouver should develop a better public transportation system.

Kobe should develop a better public transportation system.

UBC is one of the best universities in Canada.

Kobe University is one of the best universities in Japan.

Canadians should be ashamed of what Canada has become.

Japanese should be ashamed of what Japan has become.

It is probably better to have a smaller number of immigrants coming to Canada for its economy.

It is probably better to have a smaller number of immigrants coming to Japan for its economy.

What Vancouver need is more highways and wider roads, not new buslines and trains.

What Kobe need is more highways and wider roads, not new buslines and train system.

There are so many universities that have better reputation than UBC.

There are so many universities that have better reputation than Kobe University.

There are things that could be improved, but overall Canada is one of the better countries in the world.

There are things that could be improved, but overall Japan is one of the better countries in the world.
16 The government should take primary responsibility in having policy that provides descent health care at affordable cost.

Note: An asterisk indicates statements included in the Japanese version of the questionnaire.
<table>
<thead>
<tr>
<th></th>
<th>European-Canadians</th>
<th>Asian-Canadians</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialectical Self</td>
<td>3.61a (.59)</td>
<td>3.83ab (.60)</td>
<td>4.16b (.70)</td>
</tr>
<tr>
<td>Self-esteem: SIM</td>
<td>2.39a (3.71)</td>
<td>4.06ab (4.50)</td>
<td>5.53b (3.02)</td>
</tr>
<tr>
<td>Self-esteem: NAM</td>
<td>.60a (.17)</td>
<td>.67ab (.19)</td>
<td>.75b (.14)</td>
</tr>
<tr>
<td>Self-esteem: PAM</td>
<td>1.59a (1.32)</td>
<td>2.28ab (1.62)</td>
<td>2.71b (1.19)</td>
</tr>
<tr>
<td>Personality: SIM</td>
<td>2.91a (1.65)</td>
<td>4.62b (2.34)</td>
<td>3.55ab (1.68)</td>
</tr>
<tr>
<td>Personality: NAM</td>
<td>.64a (.08)</td>
<td>.71b (.10)</td>
<td>.67ab (.08)</td>
</tr>
<tr>
<td>Personality: PAM</td>
<td>1.70a (.56)</td>
<td>2.36b (.94)</td>
<td>1.92a (.59)</td>
</tr>
<tr>
<td>Attitude: Unipolar SIM</td>
<td>1.77a (.91)</td>
<td>2.67b (1.95)</td>
<td>2.20ab (1.18)</td>
</tr>
<tr>
<td>Attitude: Unipolar NAM</td>
<td>.62a (.05)</td>
<td>.65a (.10)</td>
<td>.64a (.07)</td>
</tr>
<tr>
<td>Attitude: Unipolar PAM</td>
<td>1.17a (.33)</td>
<td>1.53b (.74)</td>
<td>1.28ab (.43)</td>
</tr>
</tbody>
</table>
Note: Standard deviations are reported in parentheses. Rows with different subscripts are significantly different at $p < .05$. SIM = Similarity Intensity Model, NAM = Negative Acceleration Model, PAM = Positive Acceleration Model.
Table 2. DIF Analyses for Forming Purified Positive Self-Esteem

<table>
<thead>
<tr>
<th>Item Analyzed</th>
<th>( \eta^2 )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.005</td>
<td>.003</td>
</tr>
<tr>
<td>2</td>
<td>.055</td>
<td>.023</td>
</tr>
<tr>
<td>4</td>
<td>.005</td>
<td>.005</td>
</tr>
<tr>
<td>6</td>
<td>.036</td>
<td>.025</td>
</tr>
<tr>
<td>7</td>
<td>.016</td>
<td>.041</td>
</tr>
</tbody>
</table>
Table 3. DIF Analyses for Forming Purified Negative Self-Esteem

<table>
<thead>
<tr>
<th>Item Analyzed</th>
<th>$\eta^2$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>.130*</td>
<td>.074*</td>
</tr>
<tr>
<td>5</td>
<td>.161*</td>
<td>.100*</td>
</tr>
<tr>
<td>8</td>
<td>.025</td>
<td>.029</td>
</tr>
<tr>
<td>9</td>
<td>.171*</td>
<td>.101*</td>
</tr>
<tr>
<td>10</td>
<td>.037</td>
<td>.018</td>
</tr>
</tbody>
</table>

Note: DIF items are marked by an asterisk.
Table 4: DIF Analyses Matching on Purified Positive Self-esteem

<table>
<thead>
<tr>
<th>Item Analyzed</th>
<th>ANCOVA $\eta^2$</th>
<th>OLR $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.005</td>
<td>.002</td>
</tr>
<tr>
<td>2</td>
<td>.055</td>
<td>.023</td>
</tr>
<tr>
<td>3</td>
<td>.038</td>
<td>.015</td>
</tr>
<tr>
<td>4</td>
<td>.005</td>
<td>.003</td>
</tr>
<tr>
<td>5</td>
<td>.055</td>
<td>.027</td>
</tr>
<tr>
<td>6</td>
<td>.036</td>
<td>.022</td>
</tr>
<tr>
<td>7</td>
<td>.016</td>
<td>.017</td>
</tr>
<tr>
<td>8</td>
<td>.001</td>
<td>.003</td>
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<tr>
<td>9</td>
<td>.045</td>
<td>.057</td>
</tr>
<tr>
<td>10</td>
<td>.017</td>
<td>.021</td>
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</tbody>
</table>

Note: $R^2$ is for uniform DIF.
Table 5: DIF Analyses Matching on Purified Negative Self-esteem

<table>
<thead>
<tr>
<th>Item Analyzed</th>
<th>ANCOVA $\eta^2$</th>
<th>OLR $R^2$</th>
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<tbody>
<tr>
<td>1</td>
<td>.261</td>
<td>.249</td>
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<tr>
<td>2</td>
<td>.359</td>
<td>.359</td>
</tr>
<tr>
<td>3</td>
<td>.233</td>
<td>.197</td>
</tr>
<tr>
<td>4</td>
<td>.225</td>
<td>.224</td>
</tr>
<tr>
<td>5</td>
<td>.262</td>
<td>.233</td>
</tr>
<tr>
<td>6</td>
<td>.117</td>
<td>.100</td>
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<tr>
<td>7</td>
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<td>.049</td>
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<tr>
<td>8</td>
<td>.004</td>
<td>.001</td>
</tr>
<tr>
<td>9</td>
<td>.016</td>
<td>.010</td>
</tr>
<tr>
<td>10</td>
<td>.004</td>
<td>.003</td>
</tr>
</tbody>
</table>

Note: $R^2$ is for uniform DIF.