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Keywords: Intercultural accuracy, projection, cultural metacognition, collectivistic vs. individualistic values

CEB Working Paper № 15/029
July 2015
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Acknowledgements: We are grateful for suggestion by Ying-Yi Hong, CY Chiu and Vanessa Bohns. We would like to thank Aaron Wallen and Negin Toosi for allowing us to survey their class. We would also like to thank Johann Joh, Felix Fan and Patrick Lee provided research assistantship at various stages of the project.

Word Count: 7, 150
Abstract

The present research examines intercultural accuracy—people’s ability to make accurate judgments about outgroup values- and the role of social projection processes. Across four studies, Westerners showed overall low levels of intercultural accuracy, yet were more accurate in predicting collectivistic than individualistic values of Chinese. In parallel to the observed effects on accuracy, Westerners projected more on values that are not part of their core cultural values—collectivistic (rather than) individualistic values. In turn, the tendency to project more on collectivistic values was associated with greater accuracy on collectivistic (than individualistic) values. In Study 4 we examined the causal direction of this underlying process by manipulating projection. These novel findings revealed that projection is not always adaptive in improving accuracy: projection enhanced overall accuracy for collectivistic, but not for individualistic values. Importantly for the study of intergroup relations, accuracy on collectivistic values was positively associated with interest in future relationships with Chinese.

Word Count: 141

Key Words: Intercultural accuracy, projection, cultural metacognition, collectivistic vs. individualistic values
People’s ability to accurately gauge the values of outgroup members can facilitate low-stake as well as high-stake intergroup processes and outcomes (see Gelfand & Christakopoulou, 1999; Siegel, Licht, Schwartz, 2012). At the same time, little research has investigated whether people are generally accurate at predicting outgroup members core cultural values. Furthermore, while predictions regarding theory of mind processes has been studied extensively (for a review, see Batson, 1998), the ability to predict group level cultural values has received less attention among cultural psychology and person perception scholars (for exceptions see Ying & Li, 1999; Gelfand & Christakopoulou, 1999; Molinsky, Krabbenhoft, Ambady, & Choi, 2005). At the same time, a growing area of research on intercultural competence suggests that understanding adaptive intercultural specific cognitive processes is of important to both theory and practice (for a recent review see, Chiu, Looner, Matsumoto, & Ward, 2013; Mor, Morris, & Joh, 2013).

Recent research in person perception provides some novel clues for the underlying processes which can facilitate intercultural competence, namely, social projection (Li & Hong, 2001). Research has shown that people tend to focus on dissimilarities with outgroup members (Mallet, Wilson, & Gilbert, 2008) and that these processes reduce the likelihood of social projection process in the context of intergroup relations. As a consequence, the ability to enhance projection processes with outgroup members holds the promise of improving the quality of intergroup relations by enhancing accuracy (for a recent review, see Cho & Knowles, 2013). As such, we suggest that a deeper investigation is needed for understanding social projection in the context of intergroup judgements. We will first begin to review the literature on accuracy, social projection and cultural values to outline the landscape of our research questions.
Accuracy in Intercultural Judgments & the Role of Values

Accuracy in judgments is one of the oldest topics in social and personality psychology and has attracted a good deal of attention in research (Kenny & Albright, 1987; Swann, 1984). Despite the diversity and controversy in how accuracy is defined and studied (for a recent review, see Judd & Park, 2008), many scholars have examined biases in accuracy judgments (for a recent review, see Ames & Mason, 2012). According to Schwartz and Struch (1989), a good measure of intercultural accuracy should focus on people’s beliefs about others that: (1) guide behavior across interaction settings, (2) are commonly used by individuals when forming impressions, and (3) demonstrate the degree of similarity or difference between one’s own group and the outgroup.

One contemporary approach for studying judgment accuracy has been proposed by Kruglanski (1989). According to Kruglanski, accuracy is defined as the correspondence between a judgment and a criterion, an interpersonal consensus between judges. According to this definition, accuracy should be measured by a correlation between a judge’s estimates and the target’s actual endorsements. However in the context of intergroup relations, this judgment is more complex. For example, Park and Judd (2008) suggest employing a full accuracy design by comparing both ingroup and outgroup members responses and by evaluating them on both positively and negatively attributes. This approach prevents response biases which may arise from assessing accuracy by discrepancy scores or correlations. As such, we rely on a similar methodology and define accuracy as the level of agreement between one’s judgment of the values of another culture and self-report measures of that other culture’s values, validated in previous research (Li & Hong, 2001). While this methodological approach has been validated, little research has continued to investigate people’s judgments of outgroup members’ cultural
values. As such, we suggest that examining the domain of cultural values is of relevance to the growing research in this area on intercultural competence and person perception as it allows us to move from individual level predictions to group level consensus. Perceived consensus is of importance as it has been found to be a stronger predictor of behaviors than individual level values (see Zou et al., 2008).

**Core Cultural Values**

Cultural values are conceptions of what is preferable, desirable, or important. They provide the basis for affective evaluation of life experiences and act as guides or justifications of behaviors, preferences, and judgments (Feather, 1996; Kluckhohn, 1951; Kristiansen & Zanna, 1995; Rokeach, 1973; Schwartz & Bilsky, 1987). Values are organized in hierarchies of importance so that some values are more important than others (Rokeach, 1973; Schwartz & Bilsky, 1987). At the culture level, value hierarchy indicates the normative preference of life principles in the culture.

Accurately predicting the cultural values of outgroup members is important since values directly effect behavior and preferences (for a recent review, see Sagiv, 2011) as well as stereotypes (Schwartz & Struch, 1989). Accurate predictions of cultural values should be most relevant for values most central to individual’s national identities (Sedikekes & Brewer, 2001). Both Westerners and Easterners endorse their most important values along the core dimension of individualistic versus collectivistic values (Triandis, 1995). In the present research we focus on predictions on this core value dimension since aptitude in this domain for outgroup members can allow groups and individuals to better coordinate about high stake core cultural values (Feather, 1996; Kluckhohn, 1951; Kristiansen & Zanna, 1995; Rokeach, 1973; Schwartz & Bilsky, 1987). Due to the high level of importance in predicting values on a core cultural
dimension differentiating group members, the present research aims to focus making group level predictions about a core cultural dimension—individualism-collectivism (Triandis, 1995).

**Social Projection & Intercultural Judgments**

When making social predictions, people often allow their own characteristics and values to influence how they judge others (for a recent review, Cho & Knowles, 2013). This egocentric tendency, called social projection, is a robust and powerful phenomenon that strongly influences how we perceive others (Robbins & Krueger, 2005). Social projection is often conceptualized as a bias that leads to an overestimation of the similarity between oneself and others. But do these processes also apply when making judgments about outgroup members?

Research has shown that projection is much weaker toward people we dislike (Machunsky, Toma, Yzerbyt, & Corneille, 2015), toward people we compete with (Toma, Yzerbyt, & Corneille, 2010), toward people who are dissimilar (Ames, Mor, & Toma, 2013) and toward people who belong to other groups (Cadinu & Rothbart, 1996; Cho & Knowles, 2013; Clement & Krueger, 2002; Krueger & Zeiger, 1993). People do not project to outgroups (see for an exception Riketta & Sacramento, 2008) and therefore judge outgroup members as dissimilar, and sometimes even more dissimilar than is actually the case (Wilder, 1986). The tendency to focus on dissimilarities drives negative expectations regarding the interactions with outgroup members, but those expectations matched more positive interactions when similarity was emphasized (Mallet, Wilson, & Gilbert, 2008). This suggests that in the context of intergroup relations focusing on similarities and projecting onto others might actually improve accuracy and the quality of relations.

In line with this idea, studies have shown that projection improves empathic accuracy (Thomas, Fletcher, & Lange, 1997; Neyer, Banse, & Asendorpf, 1999), facilitates greater
cooperation (Krueger, DiDonato & Freestone, 2012 – social projection hypothesis) and is associated with higher intergroup perceptual accuracy (Hong & Li, 2001). For example, Hong and Li (2001) have shown that Hong Kong and Mainland Chinese students were more accurate in perceiving the values of the outgroup members if they used projection as a judgment strategy. These findings are consistent with early work by Hoch (1987) examining social projection tendencies and perceptual accuracy. Hoch revealed that people who displayed higher levels of projection were also more accurate when the targets were similar to them. When individuals focus on their own preferences and values it allows them to perceive greater similarities with others both in interpersonal (Cho & Knowles, 2013) and intergroup relations (Riketta & Sacernanto, 2008).

In the realm of cultural values, it is yet unknown when and how social projection processes can be triggered for cultural values which differ along established cultural dimensions (Triandis, 1993; 1995). Past theory suggests people will project on some characteristics more than on others if it allows them to satisfy motivational goals. For example, past research has shown that when people want to succeed on an intellecive task, they project more strongly their competence traits, but when individuals want to succeed on a social task, they are more likely to project on warmth traits (Toma, Yzerbyt, & Corneille, 2012). In the context of intergroup relations, people might project some values more than others because they might be motivated to achieve or maintain optimal distinctiveness with the outgroup (Brewer, 1991, 1993). It is widely known that in social interactions people balance their need for assimilation and their need for differentiation (e.g., Pickett, Silver, & Brewer, 2002). While these strategies have been examined in the context of stereotypes (for a review, see Rubin, Hewston, & Voci, 2001), little research has examined them in the context of social projection. Drawing on Brewer’s theory, we expect
that individuals may be less willing to project values and traits that *distinguish* themselves as ingroup members and more likely to project on values and traits that have positive valence and associated with outgroup members. For example, if individualistic values are perceived to be a value that distinguishes Westerners from Easterners, then Westerners would be less inclined to project these values onto Easterners. In contrast, if collectivism were perceived as less distinctive or more similar value, then Westerns might project those values onto Easterners to a greater extent.

In conclusion, extending past present research, the present research aims to make three central contributions. First, we examine Western perceivers’ overall competency in making accurate judgements about Easterners’ cultural values. Second, we examine whether accuracy varies by the type of cultural values. Third, we examine whether inducing perceived similarity with an outgroup member can directly facilitate social projection processes which in turn can facilitate people’s ability to make accurate predictions on values on which perceivers and outgroup members similarly endorse. We tested the aforementioned research questions in four studies using both quasi-field and experimental approaches and a diverse set of Western participant samples.

**Overview of Studies**

A review of individualist and collectivist values in the history of ideas and in popular sayings, Ho and Chiu (1994) identified nine conceptually different component ideas of individualism (self-reliance, individuality, autonomy, competition, individual interests, individual responsibility, financial independence, rights to privacy, and individual effort) and nine conceptually different component ideas of collectivism (collective effort with peers, collective responsibility with peers, conformity, cooperation, group spirit, striving for common
good, majority rule, self-sacrifice, and mutual support among peers). As such, we relied on these types of values for assessing intercultural accuracy alongside the dimension of collectivism-individualism which has also been administered in past research in this area (Li & Hong, 2001).

In line with our research questions, the samples included in all four studies were American and British participants with variable experiences with Chinese culture. To diminish any effects of socioeconomic status or educational level associated with college samples, we also sampled American Mturk participants (Behrend, Sharek, Meade, & Wiebe, 2011; Buhrmester, Kwang, & Gosling, 2011). In Studies 1 and 2 we tested whether intercultural accuracy was higher for collectivistic than for individualistic values. To examine the underlying mechanisms associated with intercultural accuracy, we also explored the role of factors such as perspective taking (Myers & Hodges, 2009) and cross-cultural competence vis a vis cultural metacognition (for a recent review, see Chiu, Looner, Matsumoto, & Ward, 2013; Leung, Lee, & Chiu, 2013). While these are ancillary aims of the present research, we believe that examining these individual differences can facilitate our understanding of the psychological mechanisms underlying intercultural accuracy.

**Study 1: Intercultural Accuracy among MBA Students**

In Study 1, we examined intercultural accuracy among a sample of MBA students from a large East Coast University. The study was conducted as part of an out-of-class exercise students completed at home.

**Method**

**Participants.** Fifty-seven Masters of Business Administration Students (62% male, mean age 28) attending a negotiations course at a large east coast American university participated in
this study. Of these, 67.2% were European-American, 24.1% East- or South Asian, 3.4% Latino/Hispanic, 3.4% identified as Other and 1.7% as African-American.

Only 6% of the larger cohort (n = 390 MBAs) of entering MBA students reported working or studying in China prior to entering the program.

**Measures and Procedure.**

Participants received a link to an online survey where they completed a number of negotiation course exercises, which included a task about predicting the values of Chinese students’ cultural values, filler items, and finally individual difference measures including a six item measure of cultural metacognition. Before beginning the task, participants were presented a prompt that was adapted from the instructions originally provided to Chinese students: “In the next task, we would like you to try to estimate the values most cherished by University students from China. For each of the following values, please estimate the percentage of Chinese University students who would choose the value as one of their 10 most cherished values.” (see Table 1 for complete list of values). Participants were provided with the list of the same 18 values (nine individualistic values, such as competition and individual interests and nine collectivistic values, such as collective responsibility and conformity) that had been administered to Chinese students by Li and Hong (2001). Respondents were asked to predict the prevalence of these values using percentage scores (Min = 0%, Max = 100%). After predicting Chinese students’ values, participants completed a number of other class-related exercises.

**Study Measures.** We calculated participants’ intercultural accuracy scores using a previously established measure by Li & Hong (2001): we correlated the 18 criteria values with each student’s predictions with the actual values reported by Chinese students. This analysis resulted in a correlation score for each student which reflects the association between the criteria
values and students’ individual judgments as shown in Table 1. We also administered the six-item measure of cultural metacognition (see, Van Dyne, Ang, & Koh, 2008). The items tap (1) cultural awareness (e.g., “I am aware of how to use my cultural knowledge when interacting with people from different cultures”); (2) adjustment during intercultural interactions (“I adjust my cultural knowledge while interacting with people from a new or an unfamiliar culture”); and (3) planning before intercultural interactions (e.g., “I develop action plans for interacting with people from a different culture”; Cronbach’s α = .72). We averaged students’ self-reports on the six items to create a cultural metacognition score for each student.

Results

Preliminary analyses reported in the supplementary materials revealed no significant differences (ps>.10) on intercultural accuracy among self-identified American East-Asian students versus other types of student ethnicities in the sample and therefore we decided to report the results for the entire sample below.

Intercultural Accuracy. The descriptive analyses revealed overall low levels of intercultural accuracy among MBA students (Mr = -.08, SD = .26). Furthermore, a one-sample t-test revealed that the mean difference in accuracy scores was significantly lower than 0, t(57) = -2.39, p = .02, ηp² = .09. Next, we examined MBA students’ accuracy for individualistic versus collectivistic values. A within-subject ANOVA revealed that participants’ accuracy scores were significantly lower and negative when predicting individualistic values (Mr = -.06, SD = .38), but they were positive when predicting collectivistic values (Mr = .10, SD = .40), F (1, 56) = 5.62, p = .02, ηp² = .09.

To examine the direction of prediction bias, we calculated difference scores between the predictions of students and the true means across individualistic and collectivistic values. Further
analysis revealed that participants underestimated the endorsement of individualistic values among Chinese students ($M_{\text{True value-prediction}} = -19.88$, $SD = 17.31$) and their scores fell below 0, $t(57) = -8.74$, $p < .001$, $\eta_p^2 = .57$. In contrast to individualistic values, participants overestimated Chinese students’ endorsement of collectivistic values, $M_{\text{True value-prediction}} = 12.36$, $SD = 16.82$ and these overestimations fell well above 0, $t(57) = 5.75$, $p < .001$, $\eta_p^2 = .36$.

Next, we examined whether cultural metacognition was associated with greater intercultural accuracy. To do so, we correlated students’ metacognitive scores with their individual accuracy scores and found a non-significant effect, $r(57) = .20$, $p = .13$. Examining this association by value type, we also found a non-significant association between cultural metacognition and intercultural accuracy, $r(57) = .14$, $p = .31$ and cultural metacognition and collectivistic values, $r(57) = .15$, $p = .25$. These results indicate that individuals higher on cultural metacognition were not more accurate at predicting the cultural values of mainland Chinese students. In the next study we explored alternative mechanisms that may be associated with greater intercultural accuracy.

In Study 1 we first examined intercultural accuracy among one sample of highly individualistic Westerners (Americans) and found that their levels of intercultural accuracy for Chinese values was generally low, but that Americans were more accurate in making predictions for collectivistic than individualistic values. Importantly, cultural metacognition that was previously associated with greater intercultural effective and coordination (Chua, Morris, & Mor, 2012; Mor, Morris, & Joh, 2013), was not correlated with intercultural accuracy on values. In the next study we further explored whether this effect replicated among a different sample of individuals who endorse highly individualistic values— British students.

**Study 2: Intercultural Accuracy among British Students**
In Study 2 we examined our hypotheses with a different sample of Westerners: internationally experienced British students. In addition, we also examined whether a different factor previously associated with interpersonal accuracy, perspective taking (Bernstein & Davis, 1982) was associated with greater intercultural accuracy.

Method

Participants. Ninety-three UK participants were recruited via the subject pool of a London-based business school to participate in a study about personal values and beliefs. Eleven participants were removed from the analyses because they did not follow the study instructions and failed the comprehension checks.

The resulting sample consisted of 82 participants (Female = 68%; M Age = 28.76). 89% of the participants were British citizens. In terms of ethnicity, 52.4% identified themselves as White, 25.6% as Asian, 13.4% as mixed/other, and 8.5% as Black or Caribbean. Two participants studied/worked in China before. British students reported moderate levels of familiarity with Chinese culture on a 4-point scale (M = 2.42, SD = .90; 1 = None, 2 = Little, 3 = Some, 4 = A lot).

Procedure

This study consisted of two parts to separate the administration of individual difference measures (part 1) from the main study measures (part 2). In the first part participants completed an online survey at home which included several individual difference measures. In the second part (a week later) participants completed the main study via an online survey and made predictions about Chinese students’ values.

Pre-Study Survey.

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1 Please see supplementary materials for analyses examining the effects of British self-identified East-Asian participants on intercultural accuracy. Analyses revealed that self-identified Asian-British participants did not show a significant different effect on the main measures examined in our study and thus they were retained in the sample.
Perspective Taking. Participants responded to five items from the Davis perspective taking scale (Bernstein & Davis, 1982). An example item included the following statement: “When I'm upset at someone, I usually try to "put myself in his shoes" for a while”, (1 = does not describes me well; 5 = describes me very well, Cronbach’s $\alpha = .80$).

Cultural Metacognition. Participants responded to the nine-item cultural metacognition measure ($\alpha = .89$, Ang et al., 2012). The items tap into the same dimensions as the six item measure but have greater scale reliability than the six item measure. An example item included the following statements: “I develop action plans before interacting with people from a different culture.”. We averaged participants’ responses on these nine items to create a score for each participant.

Main Study.

Part 1 Procedure. Participants completed the individual difference measures described above. A week later, participants received a link to an online survey which asked them to return for part two of the study and complete a number of tasks about predicting people’s values and behaviors.

Part 2 procedure. Participants completed an online survey in which they made predictions about Chinese students’ cultural values. The procedure and task was identical to those administered in Study 1.

Results

Preliminary analyses revealed no significant differences on the main measures of interest among self-identified British Asian and British Non-Asian students ($p’s > .10$) and therefore we report the results for the entire sample.
Intercultural Accuracy. In line with the results of Study 1, descriptive analysis revealed that British participants’ average accuracy scores fell short of 0 ($M_r = -.05, SD = .28$). A one-sample t-test further revealed that the mean difference in accuracy scores was not statistically different from 0, $t (81) = -1.49, p = .14, \eta_p^2 = .03$. These results suggest that intercultural judgments scores on this task were comparable with those of MBA students. Next, we examined British participants’ accuracy for individualistic versus collectivistic values. In line with Study 1, a within subject ANOVA revealed that participants’ accuracy scores were significantly lower and negative when predicting individualistic values ($M_r = -.09, SD = .36$), relative to positive accuracy scores when predicting collectivistic values ($M_r = .08, SD = .39$), $F (1, 80^3) = 9.63, p = .003, \eta_p^2 = .11$. This suggests greater intercultural accuracy on collectivistic than individualistic values, replicating the results of Study 1.

Cultural metacognition. As in Study 1, we explored whether cultural metacognition was associated with heightened intercultural accuracy. Replicating Study 1’s results, we found no significant association between cultural metacognition and intercultural accuracy, $r (82) = .07, p = .51$. Examining accuracy by value type, we also found no association between cultural metacognition and accuracy on individualistic values, $r (82) = -.04, p = .75$ or collectivistic values, $r (81) = .02, p = .88$. We will discuss these results in the general discussion section.

Perspective Taking. We next explored whether chronic perspective taking was associated with higher intercultural accuracy. The correlational analyses revealed a positive association between chronic perspective taking and intercultural accuracy, $r (82) = .22, p = .05$. The association between chronic perspective taking and intercultural accuracy did not differ between individualistic, $r (82) = .06, p = .58$ versus collectivistic values, $r (82) = .10, p = .39$. We further

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3 One participant did not complete the responses for the two tasks and therefore the sample size for this type of analysis was n= 81.
examined the relation between perspective taking and intercultural accuracy when controlling for familiarity with Chinese culture. The partial correlation analysis revealed that perspective taking remained a marginally significant predictor of intercultural judgments controlling for familiarity with Chinese culture, \( r (79) = .19, p = .09 \).

Overall, the results of Study 2 revealed that among British students’ overall intercultural accuracy scores were parallel to those examined with American students. Furthermore, familiarity with Chinese culture was not associated with greater intercultural accuracy for Chinese values, \( r (82) = .17, p= .13 \).

Study 2 revealed that only chronic perspective taking, yet not cultural metacognition, was associated with greater intercultural accuracy. This suggests that taking the perspective of someone from a different culture (e.g. Chinese people) may facilitate Westerners’ ability to accurately judge the endorsement of Chinese students’ values. This may be because perspective taking helps see others as individuals who share similarities with ingroup members (US and British people).

It could be that Westerners’ poor capacity to predict the values of Chinese is caused by underestimating the extent of overlap in cultural values between themselves (e.g. Westerners) and Chinese. This argument is consistent with prior research by Mallet and colleagues (2008) who showed that people overestimate the dissimilarity with outgroup members, and therefore they expect negative interactions ingroup-outgroup.

**Study 3: Projection to Outgroup as Mediating Mechanism**

In the next two studies we will test whether the lack of capacity to draw similarities with the outgroup is the underlying mechanism hindering intercultural accuracy. If so, increased projection should increase intercultural accuracy. Moreover, the effect of social projection on
accuracy should be stronger on value domains where Westerners might be more inclined to project on—namely collectivistic values.

**Method**

**Participants**

159 American participants were recruited via Mturk to participate in a study about personal values and beliefs. 66 participants\(^4\) did not follow the study instructions (e.g. entered “0” for prediction responses or failed two of the comprehension checks administered). Since participants did not provide adequate responses we were unable to form reliable measures of accuracy and hence these participants were removed from the final dataset.

The resulting sample consisted of 93 participants (Female = 52.7%; \(M_{Age} = 38\)). 97.8% of the participants were American citizens.

80.6% identified themselves as white, 5.4% Asian\(^5\), 3.2% Hispanic, 10.8 % African American None of the participants reported living in China before and only three participants reported speaking Mandarin. Participants reported moderate levels of familiarity with Chinese culture (\(M = 2.25, SD = .69\)) and overall low levels of close relationships with Chinese people: “I have close relationships with people from China” (\(M = 2.63, SD = 1.78\); responses for both items ranged from Strongly disagree = 1, to Strongly agree = 7).

**Procedure**

Participants received a link to an online survey and completed different tasks about predicting Chinese people’s values and behaviors. The ingroup and outgroup value judgment task was counterbalanced within participants. Next to each of the 18 values, participants were

\(^4\) Follow-up t-test analyses revealed the participants who were removed from the dataset did not differ from those who remained in the primary analysis in age, gender, ethnicity or overall accuracy and projection scores, ps > .05.

\(^5\) Preliminary analyses revealed that accuracy and calibration levels among self-identified Asian-Americans did not significantly differ with the rest of the sample and thus we did not remove or group their responses separately in our main analyses.
asked to make judgments about the % of (Chinese/American) students who endorsed the 18 values and their confidence in the judgment of each value. These items were later used as a measure of accuracy and ingroup projection respectively. The values were presented in the same order as in previous studies.

**Personal Endorsement of Values.** In the first part, participants were asked to rate their own personal endorsement of the 18 values used in Study 1 and 2 using the same procedures administered by Hong & Li (2001). This procedure was used to create a measure of social projection which we will describe later. Participants received the following instructions: “In the first part, we ask that you reflect about some of your most cherished values. The following list has 18 values. We would like you to choose 10 values from this list you strongly endorse. Next to each value, please enter a "1" if you endorse the value and a "0" if you do not endorse the value. For each of the following values, please indicate which of the following values you most strongly cherish.”

**Filler Task.** Participants then completed an ostensible visual perception task. Participants were asked to count the number of dots in a given space.

**Outgroup and Ingroup tasks.** For the outgroup task, participants were asked to make estimates for Chinese students by indicating the percentage of Chinese students who would choose the values as one of their 10 most important values. For the ingroup task, participants were asked to indicate the percentage of American students who would choose the value as one of their 10 most cherished values.

**Post-Study Measures.** Participants completed demographic questions and their familiarity with Chinese culture (1 = None, 4 = A lot), and Chinese students (1 = strongly disagree; 7 = strongly agree).
Results

We used participants’ ratings on the personal endorsement of values task to create the measure of outgroup social projection. To do so, we correlated the values participants indicated for themselves for each on each of the 18 values with the values they indicated for the outgroup in the subsequent task. To create the measure of ingroup social projection, we correlated the values participants endorsed for themselves with those their predictions for their ingroup (e.g. Americans). The descriptive results for each task are reported in Table 1.

Intercultural Accuracy\(^6\). Similar to MBA and British students, the American Mturk participants’ average accuracy scores fell short of 0 (\(M_r = -.07, SD = .23\)). A one-sample t-test further revealed that the mean difference in accuracy scores was statistically different from 0, \(t\) (92) = -2.72, \(p = .008, \eta_p^2 = .07\). We again replicated our previous results with a more demographically diverse sample of US participants suggesting overall low aptitude in intercultural accuracy.

Next, we examined American participants’ accuracy for individualistic versus collectivistic values. Analyses revealed that participants’ accuracy scores were significantly lower and negative when predicting individualistic values (\(M_r = -.06, SD = .31\)), but positive for collectivistic values (\(M_r = .04, SD = .33\)). A within subject ANOVA further revealed that like British participants, Americans, accuracy scores were higher for collectivistic than for individualistic values, \(F(1, t(92) = 4.77, p = .03, \eta_p^2 = .05\).

Projection. For each participant, we computed four distinct projection scores: ingroup projection for individualistic and collectivistic values, and outgroup projection for individualistic and collectivistic values. Ingroup and outgroup projection were computed as the correlation

\(^6\) As in the previous studies, we did not find significant differences in our effects among self-identified American-Asian or American Non-Asian participants and therefore we report the results for the entire sample.
between participants’ self-endorsement of values and their estimates of ingroup and outgroup members’ endorsement, separately for individualistic and collectivist values. Higher correlations indicate greater projection for each of the four scores.

The resulting correlations were transformed to Fisher Z-statistics and then analyzed with a within-ANOVA with target group (ingroup vs. outgroup) and values (individualistic vs. collectivist) as repeated measures. In line with prior research (Hong & Li, 2001) examining projection of Easterners to outgroup members, we found that Western participants projected more to their ingroup, ($M_r = .25, SD = .31$) than to the outgroup, ($M_r = .08, SD = .30$), $F(1, 92) = 15.78, p < .001, \eta_p^2 = .15$. Participants also projected more on collectivistic, ($M_r = .22, SD = .25$) than on individualistic values, ($M_r = .12, SD = .32$), $F(1, 92) = 7.80, p = .006, \eta_p^2 = .08$. More importantly, the analysis revealed a marginally significant interaction between the target group and the values, $F(1, 92) = 3.19, p = .07, \eta_p^2 = .03$. This result suggested that participants projected more on collectivistic ($M_r = .16, SD = .37$) than on individualistic values for the outgroup ($M_r = .00, SD = .38$), $F(1, 92) = 11.84, p < .001, \eta_p^2 = .11$, while there was no difference between projection on individualistic ($M_r = .23, SD = .44$) and collectivistic values for the ingroup ($M_r = .27, SD = .35$), $F < 1$. These results suggest that projection on individualistic values, highly cherished by Western perceivers, may be mute when making judgments about outgroup members.

**Outgroup Projection and Intercultural Accuracy.** Correlation analyses revealed that participants’ outgroup projection was significantly and positively correlated with overall intercultural accuracy, $r(93) = .43, p < .001$. Interestingly, projection on collectivistic values was significantly and positively correlated with accuracy on collectivistic values, $r(93) = .36, p < .001$, while projection on individualistic values was significantly but negatively correlated with
accuracy on individualistic values, $r(93) = -.20, p = .05, \eta^2 = .XX$. This suggests that higher projection is associated with higher accuracy, but only for collectivistic values. Our rationale for explaining this result is that projection should help accuracy when actual endorsements of participants’ and Chinese’s values are similar, but not when they are dissimilar. As revealed in Table 1, actual value predictions were more similar on collectivistic values than on individualistic values.

We therefore tested whether predicted similarity (projection) was higher or lower compared to actual similarity, separately for collectivistic and individualistic values. We found that for collectivist values the actual similarity values was higher ($M_r = .37, SD = .26$), than what participants expected (projection: $M_r = .16, SD = .37$), $t(92) = -4.56, p < .001, \eta^2_p = .18$.

while for individualistic values actual similarity ($M_r = -.08, SD = .31$) was slightly lower than what participants expected (projection: $M_r = .00, SD = .38$), $t(92) = 1.61, p = .11, \eta^2_p = .03$.

We will further discuss this finding in the general discussion.

**Study 4: Testing for Causality**

While Study 3 showed that projection on collectivistic values is associated with increased accuracy on those values, Study 4 directly manipulated projection and tested its effect on intercultural accuracy. We expected that projection would enhance accuracy when the values between ingroup and outgroup members are more similar than when they are more dissimilar.

We also explored whether increased accuracy increased the desire for a future relationship with outgroup members.

**Method**

**Participants.**
318 American participants were recruited via Mturk to participate in a study about personal values and beliefs. 94 participants did not follow the study instructions (e.g. entered “0’s” for prediction responses or failed two of the comprehension checks administered). Since they did not provide adequate responses we were not able to form reliable measures of accuracy and judgment confidence and hence we removed the responses from the final dataset. The resulting sample consisted of 224 participants (Female = 69.4%; M Age = 36.50). 96.3% of the participants were American citizens. 77.7% identified themselves as white, 5.3% Asian, 4.1% Hispanic, 9.5 % African American and 3.2 % identified as Other.

Procedure.

Personal endorsement of values. Participants received the same instructions and protocol as in Study 3.

Dot estimation task. Participants completed the same filler task as in Study 3.

Manipulation. Participants were randomly assigned to an induced similarity manipulation or control condition. In the induced similarity condition participants were requested to think about a typical Chinese student and what his/her day may look like and the type of every-day interactions they may have and describe the similarity with their own every-day activities in a few sentences (see Toma, Yzerbyt, Corneille, 2012). Participants in the control condition were asked to take a few moments and think about their typical day.

Tasks. Next participants were asked to predict the values of different groups. First they made their predictions about Chinese students and then about Americans in general using the same method administered for these tasks in Study 3.

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7 Preliminary analyses revealed that accuracy and calibration levels among self-identified Asian-Americans did not significantly differ with the rest of the sample and thus we did not remove or group their responses separately in our main analyses.
Interest in a future relationship. Then, participants were asked to indicate their general preferences on the following two statements: “I would be interested in working on tasks with a typical Chinese student” and “I would be interested in having a close relationship with a typical Chinese student.” (1 = not at all; 7 = very much). The two items were averaged to create a measure of interest in a future relationship with a Chinese student (Cronbach’s α = .92).

Demographics. At the end of the study, participants reported their prior interactions with Chinese people and Chinese students and their familiarity with Chinese culture before completing the same demographic questions as in Study 3.

Results

Manipulation check. A one-way ANOVA revealed that participants in the similarity condition reported feeling more similar to Chinese students (M=2.28, SD=1.03) than participants in the control condition (M=2.85, SD=1.11), F(1, 240) = 17.06, p < .001, ηp² = .07.

Intercultural accuracy. We tested whether induced similarity affected intercultural accuracy using a 2 condition (similarity vs. control) by 2 values (individualistic vs. collectivistic) mixed-ANOVA with values as repeated measure. This analysis revealed a main effect of condition: Participants in the similarity condition were more accurate in their predictions, (M = -.00, SD = .27) than participants in the control condition (M = -.07, SD = .25), F(1, 240) = 3.91, p = .049, ηp² = .02. This analysis also revealed a main effect of values: Participants were more accurate in predicting the collectivistic values (M = .08, SD = .35) than the individualistic values (M = -.05, SD = .33), F(1, 240) = 20.08, p < .001, ηp² = .09.

More importantly, the analysis revealed a significant interaction, F(1, 240) = 5.28, p = .02, ηp² = .02. Simple effects analyses showed that the similarity manipulation had a positive effect of accuracy for the collectivistic values: participants’ in the similarity condition made
more accurate predictions ($M_r = .15$, $SD = .27$) relative to participants in the control condition, $(M_r = .02$, $SD = .27$), $t(240) = -2.99$, $p = .003$, $\eta^2_p = .04$. At the same time, the similarity manipulation did not have any positive effect of accuracy for the individualistic values ($M_r = -.06$, $SD = .32$) compared to the control condition ($M_r = -.05$, $SD = .35$), $t<1$.

**Accuracy and interest in a future relationship.** Next, we examined whether higher levels of intercultural accuracy were associated with participants’ general preferences in working with a Chinese student. Correlation analyses revealed that only accuracy scores on collectivistic values were positively associated with greater interest in a future relationship with a Chinese student, $r(242) = .13$, $p = .04$. However, neither overall accuracy scores $r(242) = -.04$, $p = .54$, nor accuracy scores on individualistic values were associated with greater interest in a future relationship with a Chinese student, $r(242) = -.01$, $p = .93$, *yet* this suggests that Westerners’ accuracy on values highly cherished by Easterners is associated with more positive expectations about future intercultural interactions.

**General Discussion**

In four studies, we examined a previously under-examined, but important domain in intergroup judgments: intercultural value accuracy. We found that Western perceivers show overall low levels (e.g. below chance) of intercultural accuracy, but can increase their accuracy levels by engaging in social projection on collectivistic values only. Importantly, higher levels of accuracy were associated with interests in fostering relations with the outgroup members. This work advances theoretical knowledge in several important ways.

Our findings complement previous research on intergroup-accuracy. Past research examining intergroup social judgments revealed differential effects of accuracy in values for majority versus minority groups (Li & Hong, 2001). Our research extends those results in an
intercultural context and additionally shows that the type of values influences accuracy because people do not project to the same extent on all cultural values. Furthermore, our findings revealing the moderating role of value type of core cultural values on projection and intergroup accuracy may reconcile past research showing scare evidence for social projection with outgroups members on the one hand (Cho & Knowles, 2013), yet other research revealing that projection can enhance intergroup accuracy (Hong & Li, 1999). Building on this research, our findings suggests that focusing on similarities and projecting onto others in the context of intergroup relations is not a bias because it actually improves accuracy and the desire for future relationships.

In line with the study of Li and Hong (2001) we find that social projection can facilitate accuracy, but our studies show that this is contingent on ingroup-outgroup faultlines. Perceivers project onto outgroup members, but not on dimensions that allow them to maintain optimal distinctiveness between ingroup (e.g. Westerners) and outgroup (e.g. Eastern targets), such as individualistic values. This is an important specification and direction for future research as it can further theory on identifying factors which can derail or enhance intergroup accuracy. We also found novel evidence that social projection to outgroup members can be experimentally induced and facilitate accuracy for collectivistic values. This in turn has a positive effect on individual’s interest in future relationships with outgroup members. It could be that when uncertainty about people from other cultures is dispelled, people will be more confident to form relationships with outgroup members. We believe this is another important avenue for future research with important practical implications for solving intergroup conflicts.

Third, this research shed light on the role of different factors that have been associated with increase in accuracy. Our research shows that perspective taking could also improve
intercultural accuracy, in line with Bernstein & Davis (1982). However, the finding on perspective taking could suggest a process that may be opposite to what social projection processes suggest. Social projection processes suggest that engaging in egocentric processes may increase accuracy, while the effect of perspective taking on accuracy suggests the opposite. The apparent paradox can be explained by the different nature of those processes: while social projection reflects the extent to which people rely on self-information (self-based process), perspective taking reflects the extent to which people rely on self-information as the expense of other-information, such as stereotyping (other-based process). As such, we suggest that both processes may be necessary to develop higher intercultural accuracy. We suggest that future research should examine the role of these dual-process mechanisms in tandem as previously explored by Ames (2004).

Our work also contrasts some prior work on the role of accuracy in emotion recognition (Elfenbein & Ambady, 2003) because our results reveal that greater experience with Chinese culture is not associated with more accurate judgments on cultural values. Knowing more about outgroup members does not help if people are unable to infer similarities between themselves and the outgroup. A recent study in (Kidd & Catano, 2013) revealed that reading literary fiction (rather than popular fiction or literary nonfiction) improved participants’ results on tests that measured social perception and empathy, which are crucial to “theory of mind”: the ability to guess with accuracy what another human being might be thinking or feeling, a skill humans only start to develop around the age of four. Drawing on these findings and the present research findings suggests that processes reduce egocentric processes yet promise “perpetual union” with another mind are the most optimal for achieving accuracy.
Our research also explored individual difference measures associated with cultural intelligence previously theorized to be associated with greater intercultural accuracy (for a review, see Chiu et al., 2013). Presumably, people high on cultural metacognition should be better at accurately gauging others’ values because they are more aware of their cultural assumptions and more readily question them (Earley & Ang, 2003). However, we did not find evidence for this assumption. One explanation could be that cultural metacognition facilitates intercultural agility, but not necessarily intercultural accuracy or that self-reported metacognition should be submitted by alternate measures such as think aloud protocols (see Chiu et al., 2013). Future research should continue to investigate the role of metacognition in accuracy by relying on alternative methods to self-reports.

Last, our research contributes to ongoing research on social projection in intergroup relations (Clement & Krueger, 2002; Robbins & Krueger, 2005) by unveiling the moderating factors of outgroup social projection. It shows that people can project to outgroups at least on some dimensions even if there is no imagined contact (Stathi & Crisp, 2008) or intergroup cooperation (Riketta & Sacramento, 2008).

Limitations and Future Research

Despite the merits of the present research, it also has some limitations. First, we examined accuracy only among Westerners who judge Easterners. At the same time, we find convergent evidence with past research revealing that projection processes can facilitate intergroup accuracy. Second, we use only one type of values task. Our studies also examined other types of behavioral task (helping behaviors, see Bohns et al., 2011). However, we believe that different tasks assess different types of intercultural knowledge and skills among perceivers and hence relying on a specific domain allows us to compare our findings across different
samples. Future research may also gain insights by manipulating projection using different methods. In our current studies we manipulate projection by informing participants about the outcome of projection. Future research could explicitly ask participants not to rely on personal values when judging outgroup members’ values. In addition, distilling the role of social projection from perspective taking processes is another important direction for expanding our understanding of the underlying cognitive processes facilitating inter versus intra group accuracy.

**Conclusion**

The present research reveals that individualistic perceivers reveal overall low levels of intercultural accuracy on cultural values and their accuracy levels are improved via social projection on collectivistic, but not individualistic values. Future research should continue to examine contingencies for outgroup projection and how optimal distinctiveness processes may shape intercultural accuracy capabilities.
References


Table 1. Criterions, Predictions and Judgment Confidence for Individualistic and Collectivistic Values (Mturk American Participants: Study 3).
<table>
<thead>
<tr>
<th>Values</th>
<th>Chinese actual Mean (Stdev.)</th>
<th>Chinese predicted Mean (Stdev.)</th>
<th>American predicted Mean (Stdev.)</th>
<th>Self-rating Mean (Stdev.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individualistic values</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>87.10 (0.00)</td>
<td>49.13 (29.29)</td>
<td>59.60 (27.86)</td>
<td>52.69 (50.20)</td>
</tr>
<tr>
<td>Competition</td>
<td>71.40 (0.00)</td>
<td>66.68 (28.08)</td>
<td>62.05 (25.61)</td>
<td>32.26 (47.00)</td>
</tr>
<tr>
<td>Financial independence</td>
<td>85.70 (0.00)</td>
<td>66.83 (26.36)</td>
<td>70.69 (28.21)</td>
<td>81.72 (38.86)</td>
</tr>
<tr>
<td>Individualeffort</td>
<td>24.30 (0.00)</td>
<td>67.22 (26.87)</td>
<td>65.91 (23.69)</td>
<td>84.95 (35.95)</td>
</tr>
<tr>
<td>Individual interests</td>
<td>32.90 (0.00)</td>
<td>52.47 (27.32)</td>
<td>72.20 (23.55)</td>
<td>73.12 (44.57)</td>
</tr>
<tr>
<td>Individual responsibility</td>
<td>54.30 (0.00)</td>
<td>65.54 (26.01)</td>
<td>61.40 (26.30)</td>
<td>81.72 (38.86)</td>
</tr>
<tr>
<td>Individuality</td>
<td>67.10 (0.00)</td>
<td>44.23 (26.24)</td>
<td>76.71 (22.62)</td>
<td>84.95 (35.95)</td>
</tr>
<tr>
<td>Rights to privacy</td>
<td>72.90 (0.00)</td>
<td>47.63 (28.63)</td>
<td>78.60 (26.15)</td>
<td>83.87 (36.98)</td>
</tr>
<tr>
<td>Self-reliance</td>
<td>90.00 (0.00)</td>
<td>65.19 (26.77)</td>
<td>68.66 (23.95)</td>
<td>89.25 (31.15)</td>
</tr>
<tr>
<td><strong>Collectivistic values</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective effort</td>
<td>54.30 (0.00)</td>
<td>65.58 (25.44)</td>
<td>56.63 (23.48)</td>
<td>43.01 (49.78)</td>
</tr>
<tr>
<td>Collective responsibility</td>
<td>31.40 (0.00)</td>
<td>65.94 (25.04)</td>
<td>57.28 (23.12)</td>
<td>50.54 (50.27)</td>
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<tr>
<td>Conformity</td>
<td>4.30 (0.00)</td>
<td>68.10 (24.49)</td>
<td>35.88 (26.81)</td>
<td>7.53 (26.53)</td>
</tr>
<tr>
<td>Cooperation</td>
<td>90.00 (0.00)</td>
<td>72.25 (22.06)</td>
<td>61.73 (23.41)</td>
<td>90.32 (29.73)</td>
</tr>
<tr>
<td>Group spirit</td>
<td>51.40 (0.00)</td>
<td>62.85 (28.10)</td>
<td>59.15 (26.22)</td>
<td>37.63 (48.71)</td>
</tr>
<tr>
<td>Majority rule</td>
<td>21.40 (0.00)</td>
<td>52.95 (31.52)</td>
<td>55.91 (28.70)</td>
<td>24.73 (43.38)</td>
</tr>
<tr>
<td>Mutual support from peers</td>
<td>80.00 (0.00)</td>
<td>59.65 (27.50)</td>
<td>65.04 (25.04)</td>
<td>52.69 (50.20)</td>
</tr>
<tr>
<td>Self-sacrifice</td>
<td>28.60 (0.00)</td>
<td>72.74 (26.07)</td>
<td>42.84 (26.05)</td>
<td>40.86 (49.42)</td>
</tr>
<tr>
<td>Striving for common good</td>
<td>37.10 (0.00)</td>
<td>68.53 (25.72)</td>
<td>59.03 (25.55)</td>
<td>77.42 (42.04)</td>
</tr>
</tbody>
</table>
Figure 1. Accuracy scores on collectivistic values by condition (Study 4).