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A cross-cultural investigation of group stereotypes

Xinni Chan
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entitled

A Cross-Cultural Investigation of Group Stereotypes

by

Xinni Chan

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the

Master of Arts Degree in Psychology

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Dr. Yueh-Ting Lee, Committee Chair

_____
Dr. Jason Rose, Committee Member

_____
Dr. Andrew Geers, Committee Member

_____
Dr. Patricia R. Komuniecki, Dean
College of Graduate Studies

The University of Toledo

August 2013

An Abstract of

A Cross-Cultural Investigation of Group Stereotypes

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Although there has been extensive research on stereotype evaluation (positive or

negative) and accuracy (accurate or inaccurate), little attention has been paid to potency

(activation or no activation) in stereotypic perceptions cross-culturally. According to the

Evaluation-Potency-Accuracy (EPA) model, the potency dimension has a direct impact

on stereotypes. The current study is a cross-cultural (American and Chinese cultures)

examination of this assumption. Evaluation and accuracy were also assessed. In addition,

the current study examined the role of egocentrism and projection for low potency

groups. Ninety-five participants (53 American and 42 Chinese students) from the

University of Toledo were asked to free-associate about 10 cultural pictures and make

judgments about themselves, the ingroup, and the outgroup. Results showed that

participants had significantly more potency and accuracy about the ingroup than the

outgroup and they evaluated the outgroup neutrally (neither positive nor negative).

Furthermore, the current findings supported that participants used self-information (i.e.,

egocentric processes) to make judgments about the unfamiliar group. Discussions and

implications are discussed.

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Chapter One

Introduction

Stereotypes are perceptions that we form to generalize people into groups that share similar features or characteristics (Ashmore & Boca, 1981; Ottati & Lee, 1995). For example, "Asian Americans are classified as a model minority", "African Americans are athletic", "Germans make good cars," etc. We form these stereotypes on the basis of past experiences we have with these groups, either directly or indirectly. However, sometimes we may simply not have much experience or be unfamiliar with the group. In such situations, our stereotypes about this new group are few.

Lee and his colleagues proposed a three-dimensional EPA model of stereotypes: Evaluation (negativity → positivity), Potency (not activated → activated), and Accuracy (inaccurate → accurate) (Lee, Jussim, & McCauley, 1995 & 2013). According to Lee and his colleagues, a stereotype is comprised of these three dimensions simultaneously. Each dimension has its own impact on the stereotypes (Lee, 1995; Ottati & Lee, 1995). Furthermore, this model states that stereotypic perception is directly related to potency strength. Thus, the more familiarity people have with another group, the more knowledge or information they have stored in memory and the stronger the retrieval of knowledge from memory (Lee & Ottati, 1993). Therefore, knowledge could be crucial for us to have certain stereotypic perceptions about a group.

Most stereotype research has focused on studying the evaluation and accuracy of stereotypical perceptions (accurate or inaccurate, positive or negative) (e.g., Ashton & Esses, 1999; Diekman, Eagly, & Kulesa, 2002; Triandis & Vassiliou, 1967). Little is known about the strength of potency in stereotypic perception and only some research

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has been done regarding the activation of cognitive resources of stereotypes (see Gilbert & Hixon, 1991). One major assumption of the EPA model is that the potency dimension (activation → non-activation information on perceivers' minds) has an impact on stereotypes (no matter whether these stereotypes are negative/positive or accurate/inaccurate). In this study, the strength of potency (activation → no activation) will be examined in the stereotype.

Stereotypes are perceptions that will automatically be activated when people face a stereotyped group (Macrae, Bodenhausen, Milne, & Jetten, 1994). The automaticity activation is based on the assumption that people already have some experience/knowledge about this stereotyped group. If people are in a situation where they are unfamiliar with a novel group, what other mechanisms will they use when making judgment? Ames (2004a) suggests that people rely either on social projection (around the self) or stereotyping as an inferential strategy to make judgment. At the same time, Epley and colleagues (2004) found that perceivers use their own perspective (e.g., egocentrism) to make judgments about target groups when they have little information about these groups (Epley et al., 2004). Taken together, this present study aims not only to examine how the strength of potency affects stereotypes (inaccurate or accurate, positive or negative), but also to explore the application of these hypothetical mechanisms (social projection and egocentrism) when people make judgment about a less familiar cultural group.

Stereotypes and the EPA model

The Complexity of Stereotypes. The effects of stereotypes on behavior and judgment are inevitable in people's lives. Interestingly, stereotypes have long been

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regarded as negative and inaccurate because most people think that they can distort humans' perception and are associated with prejudice, discrimination, and are thought to be a cause of intergroup hostility and violence (Lippman, 1922). Are stereotypes necessarily negative and inaccurate? Some early researchers have argued that stereotypes are basically inaccurate and they have been used to generalize other groups at an unwarranted level (Brigham, 1971; D. Katz & Braly, 1933; LaPiere, 1936; Lippman, 1965). Others, however, have revealed that stereotypes exist and contain a kernel of truth (Allport, 1954; Campbell, 1967; Edgar Vinacke, 1949; Triandis & Vassiliou, 1967). In our society, people are advised not to use stereotypes during hiring, promotions, school admissions, and performance evaluations because they believe that, just like prejudice and discrimination, stereotypes would bring injustice to others. For instance, hiring managers hold more negative stereotypes about obese applicants (Agerström & Rooth, 2011).

As of the 1970s, a different view of stereotypes emerged. A neutral definition of stereotypes was provided by Ashmore and Boca (1981), who stated that, "a stereotype is a set of beliefs about the personal attributes of a social group" (p. 21). Based on this definition, stereotypes are formed from personal knowledge about, or experiences with the target groups. Therefore, stereotypes cannot simply be concluded as inaccurate and negative, or accurate and positive. Lee and colleagues proposed a cubic EPA model of stereotypes, and they tried to illustrate the complexity of stereotypes through this model (Lee, Jussim & McCauley, 1995).

The EPA model. According to Lee and his colleagues, this model contains three dimensions of stereotypes: "E" represents evaluation or valence (e.g., stereotypes can

range from positive to negative about a target group), "P" represents potency or latency of activation of the knowledge in memory (e.g., stereotypes can range from automatic activation to little or no activation at all based on our memory or prior experience), and "A" represents accuracy (e.g., stereotypes can range from accurate to inaccurate). All these dimensions, Evaluation (negativity → positivity), Potency (not activated → activated), and Accuracy (inaccurate → accurate) are not dichotomous, but continuous (e.g., Jussim, McCauley, & Lee, 1995; Lee, Bumgarner, Widner, & Luo, 2007; Osgood, 1979). A cubic framework of the EPA model of stereotypes is illustrated in Figure 1.
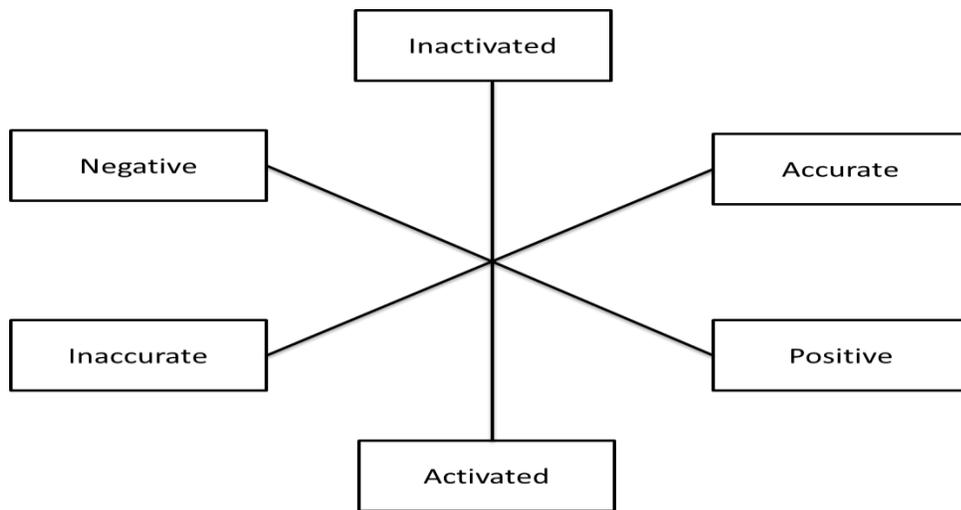
Figure 1. A Cubic EPA Model of Stereotypes (Lee, Jussim & McCauley, 2013)

Lee et al. (1995, 2013) states that almost every stereotype is synchronously comprised of the EPA dimensions and that each has a separate impact on stereotypes. For example, "Asian Americans are labeled as model minorities" which is a common stereotype about this group. With respect to evaluation, it is more positive than negative.

Potency occurs as a function of how easily people can retrieve information from memory to associate "Asian American" with "model minority." Is the model minority label accurate? According to the National Center for Education Statistics (2003), Asian American students did perform better than other racial minority groups in respect to standardized test scores, grade point averages and even college and advanced degrees.

Among these three dimensions, potency has a major impact on stereotypes. It relates to low or high activation of knowledge in memory. Back to the model minority stereotype above, people who have either direct (i.e., having Asian American friends who are academically, socially, and economically successful) or indirect (i.e., reading or hearing from the media) experience with this group can easily retrieve knowledge relevant to Asian Americans being labeled as a model minority compared to the people who seldom or have never had experience (direct or indirect) with this group. It is the degree of activation that associates Asian Americans to the concept of model minority.

Numerous theorists have assumed that the activation of stereotypes is unavoidable, and it automatically activates the perceivers' mind when they face stereotyped groups (Smith & Branscombe, 1985). Past research points out that children learn, establish, and accumulate stereotypical knowledge before they develop the cognitive ability for distinguishing and evaluating the stereotype's validity and acceptability (Allport, 1954; P. A. Katz, 1976; Porter, 1971; Proshansky, 1966). This long history of development makes stereotypes a well-learned set of mechanism, which are easily accessible in the perceivers' mind (Macrae, Bodenhausen, Milne, & Jetten, 1994). In summary, the knowledge the perceivers have towards a target group would automatically be activated when they process a stereotypical perception. The variation of

these automatic activation pieces of knowledge is assumed to contribute to the differences in intergroup judgment.

If the cubic EPA model is broken down into two dimensions by not considering potency, the nature of stereotypes can have the following combinations of attributes: positive and accurate, positive and inaccurate, negative and accurate, negative and inaccurate (see Figure 2). According to the EPA model, when people retrieve information or knowledge they have from their memory and process stereotypical perceptions about a particular group, these stereotypic perceptions can belong to one of these quadrants. Based on the above reasoning, the variation of activation of that knowledge is assumed to have an impact on stereotype content.
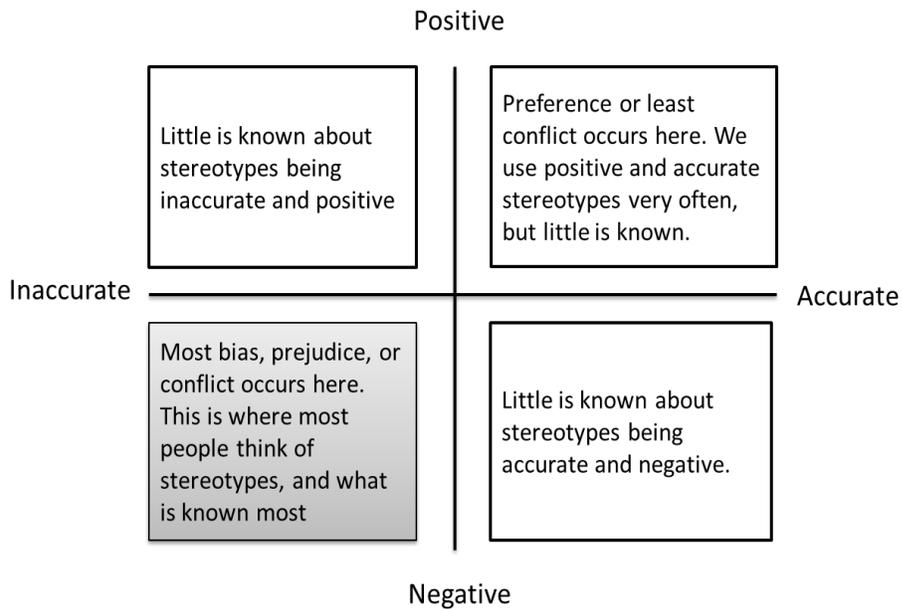
Figure 2. A two-dimensional (Evaluation and Accuracy) EPA model of stereotypes (Lee, Jussim & McCauley, 1995)

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According to early findings, contact or understanding may breed more favorability towards the people with whom we have more exposure (Heider, 1958; Ottati, Fishbein, & Middlestadt, 1988; Zajonc, 1968). Past research has found that Americans who had contact and interaction with Chinese reported knowing them better and having more positive attitudes toward them (Lee & Ottati, 1993). Thus, with more contact and greater knowledge, people are better able to understand about outgroups. Therefore, it is expected that people who spend a lot of time with outgroup members favor them more than people who do not spend time with them. Likewise, it is also possible that people who spend a lot of time with outgroup members may know more about them than people with little contact resulting in more negative judgment. However, other existing research suggests that people tend to favor ingroups over outgroups and attribute more positive characteristics to groups of which they consider themselves as members (Brewer, 1999; Hewstone, Rubin, & Willis, 2002).

Social categorization allows people to connect with those who share their group memberships. They distinguish people who they think are "inside" their group from who are "outside" the group. Based on this, people might have more direct contact with their own group rather than their out-groups. These contacts result in-group members to have a larger information database from which they can refer to when making judgments about their own group members (Judd & Park 1993). This additional information may facilitate more accurate judgments and perceptions. Consistent to this view, a study found that people really did have more accurate perceptions of their own group, but not outgroups (Ryan & Bogart, 2001; Judd & Park, 1993).

Egocentrism and Projection

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When people judge a person, they usually rely on some reference or standard (Dunning & Hayes, 1996). Kahneman and Miller (1986)'s modern norm theory states that people use some norms to judge other people. A norm is produced by accumulating a set of representations of knowledge and using them in making inferences, predictions, and judgments. When information is required, some relevant memory (such as exemplar representations) is selectively retrieved; computations of this piece of memory or knowledge are performed as needed. One of the factors that govern the weighting of the norm elements in judgments is the availability for retrieval. The weight of recent stimuli is higher than those previously presented (Lockhead & King, 1983; Ward, 1979). For example, to label a certain group as athletic, perceivers must have the knowledge that this group of people has displayed some athletic behavior to a remarkable degree among the general population or against some setting criterion. According to the EPA model, when we are in a situation with an absence of knowledge about a certain group, we have little activation of knowledge in memory about this group. In such situations, there would be no norms or standards available for us to follow and use in order to make a judgment about this particular group. When this situation happens, people tend to use their own perspective (Epley et al., 2004) and projection (Ames, 2004b).

Epley and his colleagues demonstrate that using one's own perspective (e.g., egocentrism) is more likely to occur under some conditions, such as when people are under time pressure to make a judgment, when they are not given sufficient motivation to be accurate (e.g., money for accuracy), and when they have little knowledge to go on about a target. In this study, the use of egocentrism will be focused only when people have little or no knowledge about a target group. To some extent, people tend to use their

own perspective as a starting point or judgmental anchor when considering the perspective of others (Davis, Hoch, & Ragsdale, 1986; Epley et al., 2004; Nickerson, 1999). The social judgment account also suggests that when people judge others' behaviors, they use their own responses to serve as an anchor, or a reference point (Sherif & Hovland, 1961). One explanation for such a phenomenon is that the self is the most accessible representation of individuals that people possess. For this reason, self-knowledge is easier to access and bring to mind (Dunning & Hayes, 1996). Nonetheless, people recognize that there are differences among individuals; they have to adjust this egocentric judgment to accommodate the differences between themselves and others. Often, people do not "adjust" sufficiently from their egocentric perspective - leading to errors in taking the perspective of others (Quattrone, 1982).

Furthermore, other studies also indicate that people often project their own characteristics onto other individuals, which fosters false consensus (i.e., believing that people share our characteristics, traits, and behaviors more than what is factually true) (Ames, 2004b; Ross, Greene, & House, 1977). Consistent with this theory, Ames's (2004a) similarity contingency model of social inferences argues that people are particularly likely to project their own characteristics onto others when they perceive other people to be similar to them.[1] It is because human beings have the same attributes, such as ears, eyes, and other sensory organs that operate the same ways. Therefore, it is reasonable to presume that others experience the world in the same way as we have. One clarification that needs to be made is that Ames's similarity contingency model of social

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[1]On the contrary, several studies and a meta-analysis have revealed that projection tends to be stronger on ingroup than outgroups (Clement & Krueger, 2002; Holtz & Miller, 2001; Krueger & Zeiger, 1993).

inference is using projection and stereotyping as an inferential strategy to make

judgment. However, in this work, the focus is on processing stereotypes – that is, on the

basis of the availability of information or knowledge in the perceivers' minds.

In summary, the assumption is made that everyone defaults on using egocentrism

when there is not much knowledge for people to refer for making a judgment.

Nonetheless, they do not adjust much from their egocentric anchor because they do not

know how to make the modification in order to form accurate judgments or stereotypical

perceptions. It is possible that people would think that lack of knowledge is closely

related or perhaps equivalent to unknown specific attributes about a target group. Thus, it

is assumed that perceivers would project most when they have little or no (at least less)

information about the target.

Cross-cultural Research on Social Perception

In order to test the above arguments, two distinct cultures – American and

Chinese cultures were chosen. One reason to choose these two cultures is that they

display two different social orientations. The former emphasizes individualism in which

the self is defined in terms of unique selves and distinct characteristics, whereas the later

emphasizes collectivism in which the self is defined in terms of connectedness within

group members (Triandis, 1995).

Previous studies have indicated that people in individualistic cultures tend to be

independent and individual-oriented (Hsu, 1953, 1983; Kessen, 1975; Triandis,

Bontempo, Villareal, Asai, & Lucca, 1988). They are more likely to be characterized as

autonomous, unique, and viewed as more individual-based rather than as whole-based.

On the contrary, people in collectivistic cultures tend to be interdependent and viewed as

more homogeneous (Lee & Ottati, 1993). They experience more intimacy with each other and less social distance within ingroup members. Furthermore, Hsu (1953, 1982) and Bond (1986, 1988) also stated that the Chinese are situation-oriented people who emphasize group harmony, restraint, and conformity.

Another reason for choosing these two cultures is the variation level of knowledge. Chinese participants, who stay in the United States, are fully exposed to and experience American culture locally, but this is not the same for the American participants, who have never visited China, nor have they had the opportunity to experience Chinese culture thoroughly. The more contact, and familiarity with another culture, the more knowledge participants can gain and also retrieve from their memory (Lee & Ottati, 1993).

Integration and Hypotheses

The EPA theory has stated that each stereotype is comprised of three dimensions simultaneously (Evaluation, Potency, and Accuracy). Among these three dimensions, potency dimension is the most fundamental dimension of stereotypes. It argues that stereotypic perceptions depend heavily on potency strength, which is dependent upon experience with a target group. In turn this leads to more accurate and favorable perceptions of more familiar groups. It is generally assumed that people are more familiar with their own group than the other groups. Therefore, it is hypothesized that ingroup members would have more accurate and favorable perceptions for their own group than the outgroups. If people really want to make judgments about a less familiar group, it is predicted that they would rely on their own perspectives (egocentrism or projection) to make judgments. That is, when they perceive some general similarities toward a target

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group, they project or introspect about their own attitudes and qualities and ascribe them to the target. Nevertheless, they do not often adapt enough from their own anchor in order to make an accurate judgment, because they do not know how much they need to adapt. Therefore, it is assumed that people would project their own self-characteristics more to an unfamiliar group, such as outgroup rather than the ingroup (see Figure 3).

H1: Ingroup members have more potency for their own group than outgroup.

H2: Ingroup members have more accurate perceptions for their own group than outgroup.

H3: Ingroup members are more favorable toward their own group than outgroup.

H4: The less familiar with a group, the more likely perceivers would use egocentrism or projection to make stereotypical perceptions.
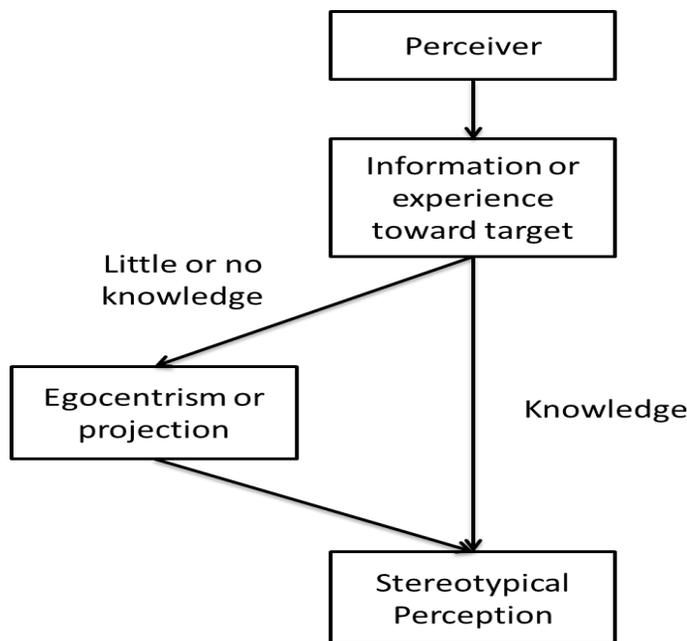
Figure 3. A flowchart summarizing the process of making stereotypic perceptions with different levels of knowledge

Chapter Two

Method

Overview

To test the hypotheses mentioned in Chapter 1, data was collected from American and Chinese students at the University of Toledo. First, the participants were instructed to free-associate when they saw 10 pictures regarding the two cultures (American and Chinese cultures), which reflected how much they know about these two cultures and the perceptions they had in terms of evaluation and accuracy. Then, they rated the judgments about themselves, ingroup and outgroup.

Participants and Design

A total of ninety-five students from the University of Toledo (53 Americans and 42 Chinese) participated in this study. For the American sample (19 male and 34 female), students voluntarily participated as fulfilling a partial course credit for their Introductory Psychology Class. For the Chinese sample (21 male and 21 female), Chinese students were recruited from the Office of International Student Services as part of a paid research session. The average years of Chinese participants who live in the United States is 1.5. In terms of education level, 47.2 % of American participants were sophomores (followed by 30.2% freshman, 11.3% senior, 7.5% junior and the rest were others) whereas 40.5% of Chinese participants were in graduate level (followed by 23.8% sophomore, 21.4% junior, 9.5% freshman, 4.8% senior and the rest were others).

Independent t-tests were assessed to age and education differences between two cultural groups. The results indicated that there were significant differences between two cultural groups in terms of age, $t(93) = -3.72$, $p < .001$ and education level, $t(93) = -4.67$,

$p < .001$. Chinese participants were older in age ($M_{age} = 23.10$, $SD_{age} = 4.66$) and higher education level ($M_{education} = 3.43$, $SD_{education} = 1.47$) than American participants ($M_{age} = 20.02$, $SD_{age} = 3.39$, and $M_{education} = 2.15$, $SD_{education} = 1.20$).

All participants were run either individually or in groups of ten with paper-and-pencil questionnaires. This study utilized a 2 x 2 x 3 mixed ANOVA design (the first factor is between-subjects, and second and third factors are within-subjects) containing the following factors: cultural groups (American and Chinese), stereotypic cultural stimuli (American and Chinese cultures), and three dimensions of the EPA model (Evaluation, Potency, and Accuracy).

Materials

Materials included 2 sets of five-PowerPoint slides and a paper-and-pencil questionnaire. The first set of slides included 5 pictures related to American culture and another set of slides included 5 pictures related to Chinese culture. The initial section of the study was free-association in which the participants saw the slides and wrote down any information that came to their minds. To control the order effect[2], some of the participants saw the slides related to American culture first, and some of them saw the slides related to Chinese culture first. They were given only 1 minute for each picture. After finishing the initial section, the participants responded to the questionnaire items that were relevant to this study, which included the measures of perceived self and group judgment, and demographic information.

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[2] Data analyses in the result section show that there was no significant interaction effect for cultural stimuli and order of presenting the stimuli, $F (1, 91) = .84$, $p > .05$. This means that counterbalanced design successfully controlled the order effect in this study.

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Cultural Stimuli. Each set of slides contained 5 pictures that related to American and Chinese cultures. For the American culture, the set of pictures included the President of the United States, the country's flag, the Statue of Liberty, the celebration of Thanksgiving, and a portion of the $100 dollar bill. For the Chinese culture, the set of pictures included the former President of China, the country's flag, the Great Wall, the celebration of Chinese New Year, and a portion of 100 Yuan. The reason or rationale for the inclusion of stimuli is that each picture represents different domains about the culture: the presidency represents politics and power, the flag represents national or symbolic identity, the tourist sites represent culture or history, the festivals represent customs and folkways, and the money represents finance or economics. These are representative dimensions or operational definitions of two cultures in general, which plays a role in data coding in terms of EPA dimensions (Appendix A and B).

Measures of Perceived Self and Group Judgment. This measurement contained 15-item adjectives. Participants rated each item on a 7-point scale ranging from 1 (certainly false) to 7 (certainly true) for self, typical Americans and Chinese. These adjective items were the following: friendly, altruistic, rational, sporty, attractive, trustworthy, easy to understand, generous, cooperative, group-oriented, intelligent, independent, religious, hardworking, and competitive ($\alpha = .87$) (Appendix C). These items were modified based on the previous personality traits inventory (Lee & Ottati, 1993; Zhang et al., 1999). These items were chosen to assess the likelihood that these two culture groups possess these traits (Gallup, 1996; Lee, Pepitone & Albright, 1997; Sung, 1992).

Procedures

Upon arrival, participants were greeted by an experimenter and directed to be seated in front of a computer. The experimenter gave each of the participants a hard-copy of an informed consent form. After the participants read and signed the informed consent form, the experimenter retrieved the informed consent form and then asked the participants to complete the materials as described above. After completing the materials, the participants were debriefed and either given credit or a lottery number with a chance to win $50.

Data Coding: Criteria and Measures

To determine the amount of knowledge, the evaluation, and the accuracy of the participants' responses to the cultural stimuli (5 pictures of American culture and 5 pictures of Chinese culture), two pairs of evaluators (one American and one Chinese on each pair) were selected, trained, and worked separately to code the qualitative data. Each pair coded the qualitative data using the same coding strategy (see Appendix E). First, in terms of potency, they calculated the number of words participants wrote for each picture. More words imply more potency. Second, they coded the content as accurate, neutral, and inaccurate and also evaluated the tone of content as positive, neutral, and negative according to the cultural stimuli's operational definitions discussed above.

Take a participant's response as an example; the 54th participant reported the picture of the President of the United States as "President, power, service, professional, leader." In terms of potency, this participant wrote a total of 5 words. Then, the evaluators coded this participant's response as accurate because he/she responded correctly about what this picture represented. They also evaluated his/her tone of content

as neutral because his/her response did not have obvious positive or negative expression, such as hate, love, stupid, intelligent, etc.

Alpha coefficients (Cronbach, 1951) were computed to assess inter-judge reliability for accuracy and evaluation. There was an acceptable reliability between two pairs of evaluators ($\alpha = .66$ and $\alpha = .63$ respectively). A paired t-test was run to test whether there was significant difference between pairs' judgment. The result revealed that there was a significant difference between pairs, $t(94) = 3.77$, $p < .001$, even though there was only .8% difference between pairs' judgment. Coding discrepancies between pairs were then resolved through discussion to create a single coding variable. The three (Potency, Accuracy, and Evaluation) dimensions' scores were then converted to z-scores because they were using different scales (a raw score can be converted to a z-score by subtracting the mean score from the raw score and then dividing it by standard deviations.

Chapter Three

Results

Cultural Stimuli's Consistency and Reliability

Two posttests[3] were conducted separately to assess the internal consistency for American and Chinese cultural stimuli with their own group. Each cultural group participants rated their own cultural stimuli in terms of familiarity (to check potency), positivity (to check evaluation) and "to what extent they represent the culture (to check relevancy or accuracy) ranging from 1 (unfamiliar, dislike, and disagree) to 7 (familiar, like, and agree) Likert scales." Alpha coefficients (Cronbach, 1951) were then computed to assess the internal consistency of two cultural stimuli separately. The results showed that there was a great degree of internal consistency for American cultural stimuli (α = .80, N = 19) and Chinese cultural stimuli (α = .85, N = 19).

Independent t-tests were performed to assess the degree of familiarity, positivity, and the extent to which the participants agreed that the pictures represent the cultures by two cultural groups. Results show that there were no significant differences across the two cultural stimuli in terms of familiarity, $t(36) = .54$, $p = .59$, $d = .18$ and positivity, $t(36) = 1.24$, $p = .22$, $d = .41$ but there was a difference in the agreement on reflection or relevancy cultural stimuli between the cultural groups, $t(36) = 2.82$, p = .008, $d = .92$ (Table 1). The results indicated that the degree of familiarity and positivity with the two cultural stimuli were no different between two cultural groups, but the extent to agree

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[3] The posttest data were collected after the experiment was done in order to assess the internal consistency of two cultural stimuli. Two groups of participants who were different from the participants in the main study were recruited and participated in the posttest data collection from Americans students (N =19) and Chinese students (N = 19).

these pictures represent the cultures was higher in American stimuli by American participants than in Chinese stimuli by Chinese participants. One possible explanation of this result is that Chinese students, who pursue their education in the U.S., are more exposed to American culture in their daily lives. This exposure may interfere with their perception of accuracy or reflection of agreement to Chinese cultural stimuli.

Table 1.

Posttest Mean Scores of Americans and Chinese in Two Cultural Stimuli

	American Cultural Stimuli rated by Americans Participants (N=19)	Chinese Cultural Stimuli rated by Chinese Participants (N = 19)
Agreement	5.57 (.70)	4.39 (1.68)
Familiarity	6.26 (.99)	6.09 (.94)
Positivity	5.42 (.67)	5.08 (.97)

Note. Standard Deviations appear in parentheses besides means.

Relationship among Three Dimensions

A Pearson product-moment correlation coefficient was computed to assess the relationship among three dimensions: Potency, Accuracy and Evaluation. The results indicated that Potency dimension was not correlated with Accuracy dimension, r = -.09, *p* = .40 and Accuracy dimension was not correlated with Evaluation dimension, r = -.1, *p* > .05, but only Potency dimension was positively correlated with Evaluation dimension, r = .26, *p* < .05. Pearson product-moment correlation coefficients were assessed to examine the relationship among three dimensions by cultural group. The results showed only one correlation was significant. That is, Potency dimension was positively correlated with Evaluation dimension in American participants, r = .30, *p* < .05. The rest of them were not significant, *ps* > .05.

Hypothesis 1: Potency Dimension

It was hypothesized that ingroup members have more potency for their own group than outgroup. The dependent variable is the number of words for cultural stimuli. A 2 (cultural groups: Americans and Chinese) x 2 (cultural stimuli: American and Chinese pictures) repeated measure ANOVA was used to assess whether American participants wrote more about American cultural stimuli than Chinese cultural stimuli and vice versa for Chinese participants. There was a main effect for cultural groups, $F(1, 93) = 7.45$, $p < .05$, $\eta_p^2 = .07$, but there was no main effect for cultural stimuli, $F(1, 93) = .08$, $p = .78$. These effects indicated that there was a significant difference between American and Chinese participants' association responses, but there was no significant difference between the cultural stimuli. The results revealed that there was an interaction effect between cultural stimuli and cultural groups, $F(1, 93) = 5.92$, $p < .05$, $\eta_p^2 = .06$. As can be seen in Figure 4, the nature of this interaction was such that American participants had significantly more potency for American cultural stimuli than Chinese cultural stimuli, $F(1, 93) = 11.47$, $p < .05$, $\eta_p^2 = .11$ whereas Chinese participants had marginal significantly more potency for Chinese cultural stimuli than American cultural stimuli, $F(1, 93) = 3.49$, $p = .065$, $\eta_p^2 = .04$ (Table 2 and 3). This data supports Hypothesis 1 that ingroup members had more potency toward their own group rather than other groups.

Table 2.

Mean Z-scores of Two Cultures on Three Dimensions of EPA Model in Americans and Chinese

	American Cultural stimuli		Chinese Cultural stimuli	
	American Group	Chinese Group	American Group	Chinese Group
Potency	.29	-.37	.17	-.21
	(1.02)	(.85)	(1.07)	(.88)
Accuracy	.23	-.30	-.45	.57
	(.88)	(1.07)	(.96)	(.74)
Evaluation	.15	-.18	.03	-.04
	(1.25)	(.50)	(1.08)	(.90)

Note. Standard Deviations appear in parentheses below means.

Table 3.

Mean Raw Scores of Two Cultures on Three Dimensions of EPA Model in Americans and Chinese

	American Cultural stimuli		Chinese Cultural stimuli	
	American Group	Chinese Group	American Group	Chinese Group
Potency	15.10	10.80	14.06	11.62
	(6.62)	(5.50)	(6.82)	(5.61)
Accuracy	2.87	2.75	2.46	2.84
	(.19)	(.23)	(.36)	(.27)
Evaluation	2.10	2.04	2.04	2.03
	(.23)	(.09)	(.19)	(.16)

Note. Standard Deviations appear in parentheses below means. The higher the number, the more potency, accuracy, and positive.
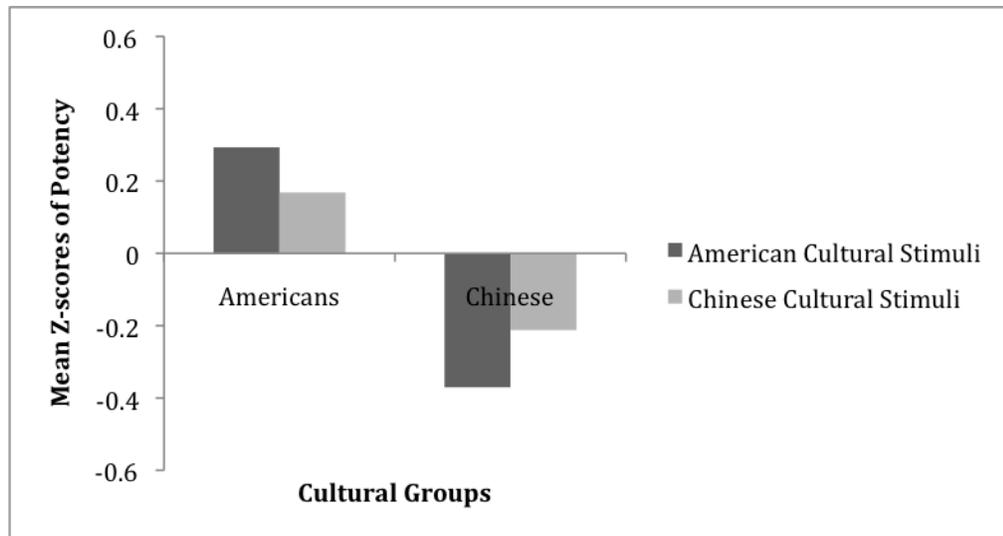
Figure 4. Cultural Stimuli on Potency in American and Chinese Groups

Hypothesis 2: Accuracy Dimension

It was predicted that ingroup members have more accurate perceptions for their own group than outgroup. The dependent variable is how accurately participants responded to the cultural stimuli. A 2 (cultural groups: Americans and Chinese) x 2 (cultural stimuli: American and Chinese pictures) repeated measure ANOVA was used to assess whether American participants had more accuracy for American pictures stimuli than Chinese pictures stimuli and vice versa for Chinese participants. There was no main effect for cultural groups and cultural stimuli, *ps* > .05. However, there was an interaction effect between cultural stimuli and cultural groups, $F(1, 93) = 50.31$, $p < .05$, $\eta_p^2 = .35$. As can be seen in Figure 5, American participants had significantly more accurate perceptions for American cultural stimuli than Chinese cultural stimuli, $F(1, 93) = 7.03$, $p < .05$, $\eta_p^2 = .07$ whereas Chinese participants had significantly more accurate perceptions for Chinese cultural stimuli than American cultural stimuli, $F(1, 93) = 32.30$,

$p < .05$, $\eta_p^2 = .26$. These data support Hypothesis 2 that ingroup members had more

accurate perceptions toward their own group rather than other group.
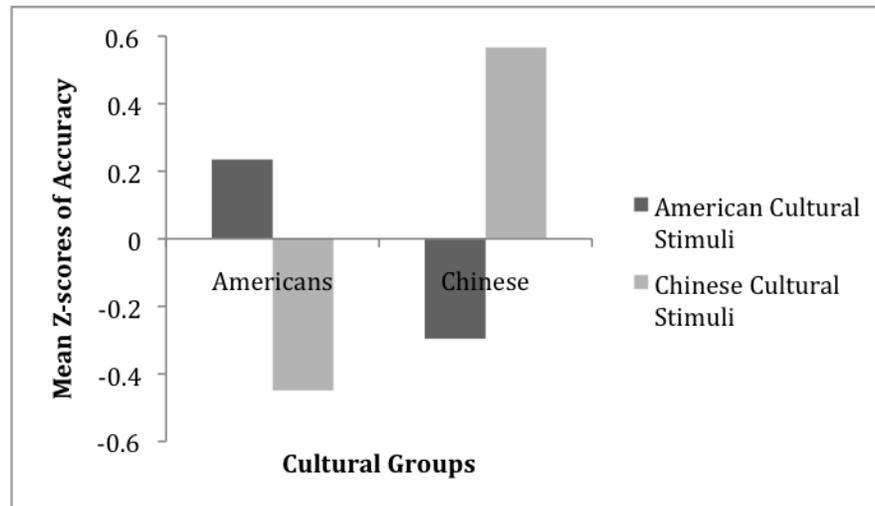
Figure 5. Cultural Stimuli on Accuracy in American and Chinese Groups

Hypothesis 3: Evaluation Dimension

It was hypothesized that ingroup members have more favorable perceptions

toward their own group than outgroup. The dependent variable is how favorably

participants have in the cultural stimuli. A 2 (cultural groups: Americans and Chinese) x

2 (cultural stimuli: American and Chinese pictures) repeated measure ANOVA was used

to assess whether American participants had more favorable content for American

pictures stimuli than Chinese pictures stimuli and vice versa for Chinese participants.

There were no main effects for cultural groups and cultural stimuli, *ps* > .05. These

results indicated that there was no difference between either cultural groups' association

responses or cultural stimuli. As can be seen in Figure 6, American participants had more

favorable content for American cultural stimuli than Chinese cultural stimuli whereas

Chinese participants had more favorable for Chinese cultural stimuli than American cultural stimuli. However, this interaction effect was not significant, $p > .05$. The data did not support Hypothesis 3 that ingroup members had more favorable content towards their own group than outgroup.
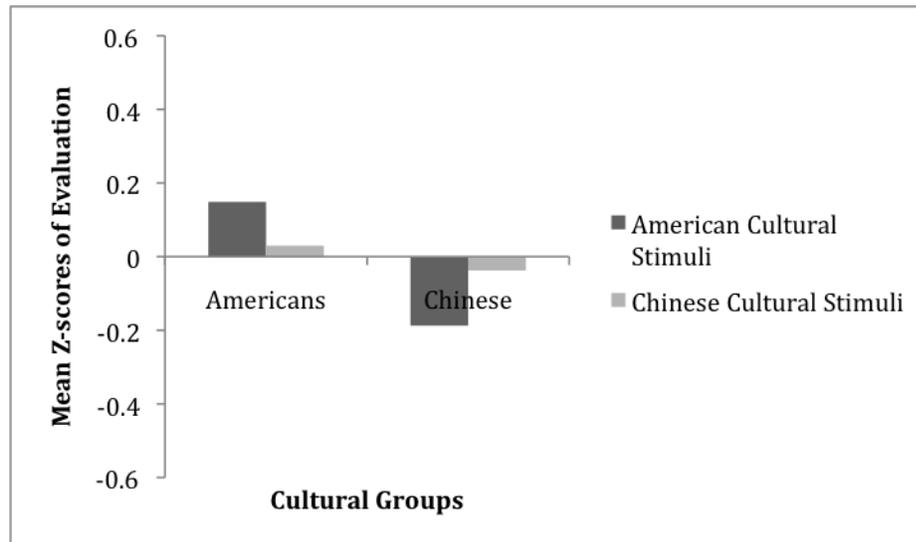
Figure 6. Cultural Stimuli on Evaluation in American and Chinese Groups

Hypothesis 4

The prediction for Hypothesis 4 is that the less familiar with a group, the more likely perceivers would use egocentrism or projection to make judgment. Generally, people are less familiar with outgroups than their own group. It was expected that self-cues would be used in making judgment about outgroups. If this is the case, a relationship would be found between the judgment about own traits and outgroup's traits. A Pearson product-moment correlation coefficient was computed to assess the relationship between the self with ingroup and outgroup. Higher correlations imply more projection. For American participants, there was a strong positive correlation between the self and outgroup, $r = .42$, $p < .05$, $Zr = .45$, but no relationship between the self and ingroup, r =

.16, $p = .27$, Zr = .16. The difference between these correlations was statistically

significant, $Z = -2.17$, $p < .05$ For Chinese participants, there were strong positive

correlations for both between the self and ingroup, r = .45, $p < .05$, Zr = .52 and the self

and outgroup, r = .48, $p < .05$, Zr = .49. The difference between these correlations was

not statistically significant, $Z = -.19$, $p > .05$ (Table 4).

Table 4

Pearson's Product Moment Correlations for the Self with In-group and Out-group in Americans and Chinese

		Self	Typical Americans	Typical Chinese
Americans				
(n = 53)	Self	-	.16	.42*
	Typical Americans		-	.60**
	Typical Chinese			-
Chinese				
(n = 42)	Self	-	.45*	.48**
	Typical Americans		-	.31*
	Typical Chinese			-

*Note. * = $p \le .05$, ** = $p \le .001$.*

A 2 (cultural groups: Americans and Chinese) x 2 (Traits: self-ingroup vs. self-

outgroup Americans vs. typical Chinese) repeated-measures ANOVA was conducted to

analyze the interaction effect of culture groups (Americans versus Chinese) with

correlation types (self-ingroup versus self-outgroup). There was not a main effect for

cultural groups, $F(1, 93) = .07$, $p > .05$, but there was a main effect for traits, $F(1, 93) =$

45.98, $p < .001$, $\eta_p^2 = .33$. These results indicated that there was no difference between

cultural groups' trait responses, but there was a significant difference among self-ingroup

and self-outgroup. There was an interaction effect between cultural groups and traits, F

$(1, 93) = 13.83$, $p < .001$, $\eta_p^2 = .13$. As can be seen in Figure 7, American and Chinese

participants tended to project their own traits towards outgroup than ingroup, but the results were no significant differences, $F(1, 93) = .90$, $p > .05$, $\eta_p^2 = .01$ and $F(1, 93) = 1.88$, $p > .05$, $\eta_p^2 = .02$ (see Table 5).

Table 5

Mean Scores of the Self-Ingroup and Self-Outgroup in Americans and Chinese Participants

	Self-Ingroup	Self-Out-group
American Participants	5.24 (.51)	5.59 (.58)
Chinese Participants	5.33 (.46)	5.44 (.44)

Note. Standard Deviations appear in parentheses beside means.
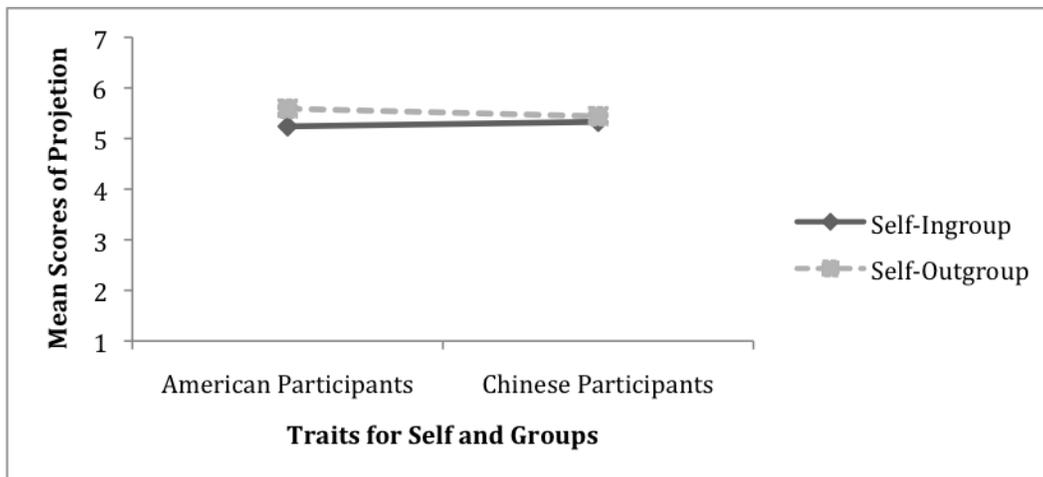
Figure 7. Traits for Self-Ingroup and Self-Outgroup in Americans and Chinese Groups

Additional Analyses

A series of repeated measure of analysis of variance were run to assess whether there is any cross-cultural groups accuracy on the stereotypical traits in order to further support the assumption that the impact of potency strength in the stereotypic perceptions. Table 6 shows the traits where the significant main effect of the trait evaluation of the

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within-group was found. There were cross-cultural consistencies that both American and Chinese participants reported the typical American as more sporty, attractive, easy to understand, independent, and religious than the typical Chinese, whereas they reported the typical Chinese as more rational, trustworthy, intelligent, and hardworking than the typical American. There results were consistent with the previous research that Chinese rated the typical American as more sporty and religious, and less hardworking and trustworthy than the typical Chinese (see Gallup, 1996; Lee & Ottati, 1993; Lee, Pepitone & Albright, 1997; Ottati & Lee, 1995). These additional findings further support the claim that Chinese who have more knowledge about American culture had a consistent rating with Americans in their stereotypical traits.

Table 6.
Cross-cultural stereotypes of "Typical American" and "Typical Chinese"

	Typical American		Typical Chinese		df	F
	American	Chinese	American	Chinese		
Friendly	4.63 (1.01)	5.71 (.74)	4.96 (1.07)	5.12 (1.04)	(1. 92)	1.17
Altruistic	4.16 (.97)	4.98 (1.08)	4.65 (1.04)	4.54 (.95)	(1, 90)	.04
Rational	4.25 (1.03)	5.14 (1.05)	5.21 (1.04)	4.86 (1.35)	(1, 93)	4.88*
Sporty	4.96 (1.16)	6.10 (.98)	4.02 (1.34)	4.50 (1.19)	(1, 93)	52.22**
Attractive	4.85 (.97)	5.00 (1.06)	4.43 (1.32)	4.74 (.96)	(1, 93)	6.62*
Trustworthy	4.04 (1.26)	5.19 (.83)	5.02 (1.17)	4.76 (1.17)	(1, 93)	4.58*
Easy to Understand	5.26 (1.10)	5.29 (1.11)	3.55 (1.44)	4.69 (1.20)	(1, 93)	51.35**
Generous	4.15 (1.06)	5.15 (1.15)	4.8 (1.19)	4.83 (1.14)	(1, 92)	1.94
Cooperative	4.68 (1.07)	5.71 (1.00)	5.34 (1.11)	4.81 (1.02)	(1, 93)	.75

Group Oriented	4.50 (1.15)	5.57 (1.19)	5.23 (1.20)	4.76 (.91)	(1, 92)	.06
Intelligent	4.53 (1.09)	4.98 (1.18)	6.28 (.87)	5.74 (.86)	(1, 93)	101.91**
Independent	4.83 (1.27)	6.24 (.91)	5.17 (1.49)	4.86 (1.10)	(1, 93)	8.69*
Religious	4.62 (1.06)	6.05 (1.06)	4.98 (1.41)	3.86 (1.76)	(1, 93)	22.25**
Hardworking	4.53 (1.19)	4.83 (1.08)	6.40 (.99)	5.93 (.87)	(1, 93)	119.81**
Competitive	5.83 (1.34)	5.50 (.99)	5.60 (1.40)	5.67 (.98)	(1, 93)	.03

Note. Standard deviations were presented in parentheses under the means. $* = p < .05$, $** = p < .001$.

Chapter Four

Discussions

The current study examined the complexity of different components of stereotypes. Revisiting the three dimensions of the EPA model, the potency dimension is considered to be the most fundamental dimension in stereotypic perceptions. This is because the variation of potency has a direct impact on the stereotype content. Generally, people are more familiar within their own group than other groups. The findings were consistent with Hypothesis 1 and 2 that ingroup members had a higher level of activation of knowledge and more accurate perceptions with their own group than outgroup. However, the results did not support Hypothesis 3 that ingroup members were more favorable toward their own group than outgroup.

As discussed earlier in the Introduction, there is evidence that the more contact or understanding between individuals, the more favorability towards the people whom we have more exposure to (Heider, 1958; Ottati, Fishbein, & Middlestadt, 1988; Lee & Ottati, 1993; Zajonc, 1968). However, there is also evidence that more contact and greater knowledge about the target may polarize the evaluation formed by people (Jackman & Crane, 1986; Spencer-Rodgers & McGovern, 2002). Therefore, it is not surprising that the findings did not support Hypothesis 3. Another possible explanation to the unsupported Hypothesis 3 is the social desirability response bias, which people are inclined to answer the question in a way to be more socially acceptable rather than revealing their "true" attitude or perceptions. Participants may be reluctant to rate themselves in a socially undesirable way or to be viewed as stereotyped group. This bias could affect participants' responses. Consistent with this view, both American and

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Chinese participants did not have favorable contents either towards their own group or outgroup. Future research might benefit by adding social desirability measurements to rule out the possibilities of social desirability that may have caused dishonest attitude responses toward cultural stimuli and self-traits.

Furthermore, consistent to the hypothesis, American participants showed projection or egocentrism to the unfamiliar group. That is, they projected self-traits to out-group's traits. However, Chinese participants did not show projection to the unfamiliar group. One possible reason which was discussed earlier is that American participants who do not have the equal opportunities as Chinese participants to experience the culture locally might unfamiliar toward Chinese people. On the contrary, Chinese participants who are studying in the U.S. experience American culture directly might increase their familiarity toward American people. Therefore, American participants need to use projection toward unfamiliar group when making judgment but Chinese participants did not need to use projection because they already have some familiarity toward American people.

According to the Norm Theory (Kahneman, 2011; Kahneman & Miller, 1986), the degree of availability for retrieval is the determinant of norms. As Kahneman's and Miller's (1973) perspective explained, the stereotype was derived from representative heuristic, which results in base-rate neglect. That is, people violate Bayes' rule by using representative heuristic for category judgment and ignore the prior probability of the category. However, McCauley's and Stitt's (1978) defined stereotypes as probabilistic predictions that differentiate the stereotyped group from others. With evidence, McCauley et al.'s studies have confirmed that people do take base rates into account

when making stereotypes prediction from group membership information (see McCauley & Stitt, 1976, 1978; McCauley, Stitt & Greenberg, 1974). In other words, stereotypic beliefs may contain some accurate perceptions about a stereotyped group. The result of this study was consistent to this view that Chinese and American participants did make some accurate stereotypic perception traits on each other.

Limitations and Future Directions

This study has a couple potential limitations that provide for promising future research directions. One limitation is the English language used. The free-association technique is used to get levels of activation of knowledge in memory. This association task allows participants to write whatever they want when they see the stimuli. As their native tongue, American participants can easily transform their associated perceptions and then express them in English, but this is not the same for Chinese participants. That is, learning English as a second language for Chinese participants might have limited English proficiency that may have interfered with their performance. The finding is consistent with the view that Chinese participants did show a lower level of potency than American participants. This matters because, as discussed before, Chinese participants who stay in the United States and have had substantial exposure to American culture were expected to show more potency about American culture, even though the degree of potency might not be equivalent to American participants. Therefore, it is reasonable to think that the current findings might have been affected by the Chinese participants' low level of potency. Thus, future research is needed when using a Chinese version questionnaire for Chinese participants to solve the language barrier problems.

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Second, presenting the cultural stimuli closely to one another may cause contrast effects, which potentially influences participants' sequential perceptions toward the stimuli. Past research shows that the recent stimuli are weighted more heavily than those presented earlier and also when two stimuli appear close to one another they are judged against a fixed anchor (Lockhead & King, 1983; Sherif, Taub & Hovland, 1958; Ward, 1979). If this is the case, then the lack of a control stimulus between the two opposite cultures may lead to contrast effects. In the absence of resources, the nearest inferences to the target would be more likely to be referred and used. Social judgment model suggests that people's judgment and perceptions are influenced by the discrepancy between the stimuli that is to be evaluated and the judge's internal anchor and standards (Sherif & Hovland, 1961). Therefore, alternative methodologies are needed for future research to control this effect.

Implications

From a theoretical perspective, this study provides further evidence to support the EPA model, which states that stereotypes are comprised from three continuous dimensions. Among these three dimensions, potency dimension is considered to be the fundamental dimension. In other words, the contents of stereotypes (positive or negative, accurate or inaccurate) depend on the knowledge availability. For a practical perspective, analyzing stereotypes in three-dimensions can help us to gain more understanding about human differences because human beings are different in various aspects, such as social status, race, genetics, etc. It is these differences that provoke stigmas, conflict, and prejudice. Thus, understanding and appreciating human diversity can be said as the first step to ameliorate the relationships between different groups and reduce any stigmas,

misunderstandings, and conflicts that might occur in the future. In a sense, the present work should shed some light on the influence of cognitive accessible information on social judgment.

The findings of the association between traits of self and social judgments also affirmed by the role played of the self in evaluating unfamiliar people. That is, people activated self-relevant information when judging the unfamiliar outgroup because that information is highly accessible to them. One reason so many scholars take an interest in stereotypes is because they entail distortions and foster unfavorable outcomes, such as conflicts. This present study offers ideas that stereotypes formed on the basis of experiences or knowledge through social interaction either formed directly or indirectly. It also provides some initial evidence indicating the impact of the variation level of knowledge in stereotype formation. Therefore, stereotypes are indeed based on social reality. This implies that changing social reality might lead to stereotype changes. If scholars really want to change negative stereotypical perceptions about certain groups, then the question of how to deal with social problems more realistically must be considered.

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Appendix A

5 pictures related to American Culture
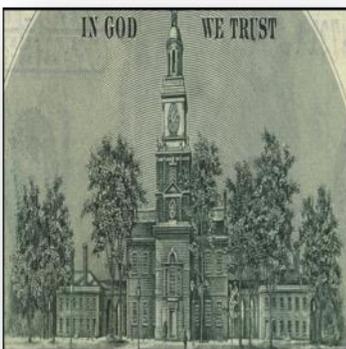
Appendix B

5 pictures related to Chinese Culture

Self-Perception and Group Judgment Scale

Listed below are a number of items collected from a variety of sources related to social perception and group judgment. Please place a number of reflect your opinion in each column.

| 1 = least true | 2 = less true | 3 = little true | 4 = neutral | 5 = much true |
| 6 = more true | 7 = most true |

	Self	American	Chinese
1. Friendly			
2. Altruistic			
3. Rational			
4. Sporty			
5. Attractive			
6. Trustworthy			
7. Easy to understand			
8. Generous			
9. Cooperative			
10. Group Oriented			
11. Intelligent			
12. Independent			
13. Religious			
14. Hardworking			
15. Competitive			

Appendix D

Data Coding

First Step: Level of Activation (Potency)

- Calculate the number of words written for each picture.
- These examples are considered as one word:
  - 1ˢᵗ, 50, U.S., I'm, N.Y., RMB
- Special cases:
  - "Jin Tao" as two separate words
  - "JinTao" or hyphenated "Jin-tao" as one word

Second Step: Accuracy

- Accurate = 3, Neutral = 2, Inaccurate = 1

Examples From Participants (P) for American leader picture:	
Accurate	P3: President of the United States, 1ˢᵗ African American, Washington D.C.
	P54: President, power, service, professional, leader
Neutral	P11: Obama, chimpanzee, stupid African American
	P17: I see a proud man leading his nation and think of all the problems and strife happening in the country

Third Step: Evaluation

- Positive = 3, Neutral = 2, Negative = 1

Example Answer from Participant (P) for the picture of Chinese Leader	
Positive	P5: He is the Chinese chairman. He looks nice. We love him.
Neutral	P20: Jingtao Hu, Chinese president
Negative	P68: Business man with suit and glasses. A red background makes him look stern. He has a bored look on his face and puckered up lips sad eyes.