Article

Differences in Career Decision-Making Profiles Between American and Chinese University Students: The Relative Strength of Mediating Mechanisms Across Cultures

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Abstract

The current research examined differences in career decision-making profiles (CDMP) between American and Chinese university students, as well as the mediating mechanisms possibly underlying these cultural differences. The results of a survey among American (n = 929) and Chinese (n = 945) undergraduates showed that Chinese participants scored significantly higher on *consulting with others, desire to please others, willingness to compromise, dependence on others*, and *procrastination*, but lower on *aspiration for an ideal occupation, internal locus of control*, and *effort invested* in career decision-making than did the American participants. Using a model based on self-construals and subjective cultural norms, we established that interdependent self-construal, independent self-construal, and the perceived individualism-collectivism norm operative in the respondents' nation served as important mediators of the relationship between culture and endorsement of the dimensions of the CDMP. Moreover, based on the model of cultural tightness-looseness, the results provided partial support for the prediction that individuals' personal cultural orientations (e.g., self-construals) served as stronger predictors for CDMP among the American participants than among the Chinese, whereas the perceived cultural norm served as a stronger predictor for CDMP among the Chinese participants than the Americans. The current research provides implications for career decision-making in different cultural

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groups and suggests the operation of differential mechanisms involved in reaching career decisions across societies varying in individualism-collectivism.

Keywords
career decision-making profiles, self-construals, individualism-collectivism norm, cultural tightness-looseness

In recent years, there has been an increasing research interest in how individuals make their career decisions, and how different ways of career decision-making affect individuals' career-related outcomes (e.g., Gati, Gadassi, & Mashiah-Cohen, 2012; Gati, Landman, Davidovitch, Asulin-Peretz, & Gadassi, 2010). Gati and colleagues (2010) developed an 11-dimension measure of career decision-making profiles (CDMP) among Israeli and American university students, capturing the diverse strategies that individuals adopt in their career decision-making process. The CDMP scale has been validated in the Chinese context, and its factor structure was supported among Chinese university students (Tian et al., 2014). It has been found that across these cultures, CDMP dimensions serve as important predictors for career-related outcomes, including career decision status, career decision-making efficacy, and career decision-making difficulty (Gadassi, Gati, & Dayan, 2012; Gati et al., 2012; Tian et al., 2014).

Among the 11 definitions of CDMP, *aspiration for an ideal occupation* (the extent to which individuals strive for an occupation that is best for them), *internal locus of control* (the degree to which individuals believe their career future is controlled by themselves rather than by external forces), and *effort invested* (the amount of time and effort invested in the decision-making process) capture the self-oriented strategies in individuals' career decision-making process, while *consulting with others* (the extent to which individuals consult with others during the various stages of the decision process), *desire to please others* (the degree to which individuals want to satisfy the expectations of significant others), *willingness to compromise* (the extent to which individuals are willing to be flexible about their preferred alternatives), *dependence on others* (the degree to which individuals expect others to make the decision for them), and *procrastination* (the degree to which individuals delay beginning or advancing through the career decision-making process) reflect the other-oriented strategies adopted by individuals when making career decisions. In addition, *information gathering* (the degree to which individuals are thorough in collecting information), *information processing* (the degree to which individuals analyze and process information into its components), and *speed of making the final decision* (whether individuals quickly make final decisions once the information has been collected) capture the information-processing strategies in individuals' career decision-making.

While the factor structure and predictive validity of CDMP have been supported across different cultures, previous research has also suggested that individuals from the United States and China might adopt somewhat different strategies in collecting and processing information in their career decision-making. For example, single culture studies have found that among American university students, scores on *dependence on others* and *desire to please others* were extremely low (e.g., Gati et al., 2010); however, the results obtained from Chinese university students showed that the scores on these two dimensions were moderate (Tian et al., 2014). To date, no systematic work has been done to examine the cultural variations of CDMP, along with the mechanisms underlying this process. Based on previous theories and studies on cultural differences in individualism-collectivism (I-C, Hofstede, 2001; Triandis, 1995), the current research will address this gap by investigating the cultural differences in CDMP between American and Chinese university students, as well as the factors driving these differences across these two cultural groups. By doing so, this study will contribute to our understanding of how culture shapes

individuals' CDMP and provide implications for career education practices in different cultural settings (Savickas & Walsh, 1996; Stead, 2004). To situate the current research in the emerging discourse, the relevant literature on I-C and CDMP will be reviewed, and then empirically testable hypotheses will be presented.

Culture Differences in I-C Between United States and China

The concept of I-C refers to the extent to which a person is defined as an individual or as a member of a significant in-group (Hofstede, 2001; Triandis, 1995). Individualism emphasizes the priority of personal goals over the goals of collectives, and collectivism emphasizes the subordination of personal goals to collective goals (Triandis, 1995). I-C has provided an important theoretical framework in explaining cultural differences in various psychological processes between East Asians (e.g., Chinese) and North Americans (people from the United States). Western cultures, such as the dominant American culture, are characterized by a high level of individualism, whereas East Asian cultures, such as the dominant Chinese culture, are characterized by a high level of collectivism (Hofstede, 2001; Markus & Kitayama, 1991; Triandis, 1995). A growing body of research has shown that I-C serves as an important basis for explaining cultural differences in cognition, motivation, and emotion between East Asians and North Americans (e.g., Varnum, Grossmann, Kitayama, & Nisbett, 2010). However, there exist different perspectives on the underlying mechanisms involved in these processes.

Cultural theories posit that individuals internalize I-C at the culture level and form different kinds of self-construals at the individual level (e.g., Markus & Kitayama, 1991; Triandis, 1995). Markus and Kitayama (1991) proposed that when individuals internalize collectivistic values, they form a stronger interdependent self-construal, which refers to the view that one's self is embedded in group membership and in relationships with others; when individuals internalize individualistic values, however, they develop an independent self-construal, which refers to the view that one's self is agentic, unique, and distinctive from others. Markus and Kitayama (1991) argued that interdependent individuals are more likely to pay attention to social context and to develop social-oriented goals, whereas independent individuals tend to pay attention to their own characteristics and develop self-directed goals. Previous research has demonstrated that the model of self-construals offers an important perspective in explaining how cultural differences in I-C affect individuals' social cognition and behavior (Cross, Hardin, & Gercek-Swing, 2011; Guan, Deng, Risavy, Bond, & Li, 2011).

In addition to the self-construal model, researchers have also proposed the model of subjective cultural norms to explain the underlying mechanisms of cultural differences in I-C-related phenomena (Bond, 2013; Fischer et al., 2009; Wan et al., 2007; Zou et al., 2009). According to this model, individuals accumulate knowledge while functioning in a social system, so that they become able to represent that culture's norms (e.g., values, beliefs, life practices) that are widely shared among cultural members, and use these perceived cultural norms to guide their decisions and behavior (Bond, 2013; Wan et al., 2007; Zou et al., 2009). Fischer et al. (2009) found that the perceived I-C norm predicted a significant amount of variance in individuals' social behavior over and above the constructs tapping a personal I-C orientation, which suggests that normative forces play additional, important roles in predicting social behaviors. Accordingly, Zou et al. (2009) found that perceived cultural norms play unique roles in explaining cultural differences in compliance, after controlling for the effects of individuals' personal cultural orientation.

The above discussion suggests that, due to the cultural differences in self-construals and the perceived I-C norm, American and Chinese university students may adopt different ways in making their career decisions. Specifically, we propose that the higher level of interdependent self and the tendency to comply with the collectivistic norm will make Chinese students take an other-oriented approach in their career decisions. In contrast, the higher level of independent self

and the individualistic norm will motivate American university students to take a self-oriented approach in this process. Based on the definitions of the 11 dimensions of CDMP, we differentiated other-oriented strategies (e.g., *consulting with others, desire to please others, willingness to compromise, dependence on others, procrastination*) from self-oriented strategies (e.g., *aspiration for an ideal occupation, internal locus of control, effort invested*), and discussed the cultural differences in these CDMP dimensions between American and Chinese students below.

The Present Study

Among the other-oriented CDMP dimensions, *consulting with others* refers to the extent to which individuals want to consult with others during the various stages of the decision process. We propose that, as individuals in a collectivistic society (e.g., China) are more likely to consider others' opinions (Triandis, 1995), Chinese university students may be more likely to consult with others than American students (H1a). In collectivistic societies, significant others, such as parents and partners, often play significant roles in individuals' decision-making (Markus & Kitayama, 1991; Triandis, 1995). Accordingly, Chinese students are likely to score higher on the dimension of *desire to please others* than American students, as this dimension refers to the degree to which individuals attempt to satisfy the expectations of significant others (H1b). In a collectivistic society, to incorporate others' suggestions and expectations into one's own career decisions, individuals may have to adjust their career choices in response to these social considerations. As a result, Chinese students may be more likely to compromise on alternative career choices than American students (H1c). As suggested by previous research (Mau, 2000), in a collectivistic society, the high involvement of social relations in individuals' decision-making may result in the diffusion of responsibility, which may make individuals feel less responsible for their career decision-making. Consequently, Chinese students may be more likely to *depend on others* in their career decision-making than do American students (H1d). Similarly, the involvement of social relations in one's career decision-making may also increase the complexity of this process, which may lead to the reluctance of beginning or advancing through the career decision-making process. Therefore, Chinese students may show a higher level of *procrastination* than U.S. students (H1e).

In contrast, in an individualistic culture such as the United States, individuals' unique defining features (e.g., abilities, interests, values, and beliefs) are highly emphasized in their career choices (Markus & Kitayama, 1991; Triandis, 1995). Therefore, American students may have a greater tendency to select and pursue an ideal occupation that they believe matches their unique abilities and motives (H1f). Previous research has shown that independent values are associated with internal styles of making attributions (Varnum et al., 2010). Following this argument, American students should be more likely to believe that their career future is determined by themselves, rather than by luck or fate (H1g). In addition, in line with the values of personal autonomy and self-direction, American students may be more likely to exercise control over their career development by putting more effort into this process (H1h).

As the dimensions of *information gathering, information processing*, and *speed of making the final decision* do not directly reflect cultural differences in I-C, we did not develop hypotheses on cultural differences for these three factors.

> **Hypothesis 1 (H1):** Compared with American students, Chinese students will score higher on *consulting with others* (H1a), *desire to please others* (H1b), *willingness to compromise* (H1c), *dependence on others* (H1d), and *procrastination* (H1e), but lower on *aspiration for an ideal occupation* (H1f), *internal locus of control* (H1g), and *effort invested* in career decision-making (H1h).

In addition to the main effects discussed above, the current study simultaneously examined the mediation roles of interdependent self-construal, independent self-construal, and the perceived I-C norm in this process. We propose that, as the model of self-construal and perceived I-C norm captures distinct ways through which culture affects individuals' CDMP, both mediating processes are likely to be supported in this study. That is, driven by the personal cultural orientations (self-construals) and perceived I-C norm, American and Chinese students would display the different patterns of CDMP hypothesized above. To examine these ideas, we propose the following mediation models:

Hypothesis 2 (H2): The relationship between culture (United States and China) and the eight dimensions of CDMP (*consulting with others, desire to please others, willingness to compromise, dependence on others, procrastination, aspiration for an ideal occupation, internal locus of control*, and e*ffort invested*) will be mediated by individuals' interdependent self-construal (H2a), independent self-construal (H2b), and perceived I-C norm (H2c).

In addition to demonstrating the co-existence of distinct mediation mechanisms, based on the model of cultural tightness-looseness (Gelfand et al., 2011; Pelto, 1968), this study also examined whether culture (American vs. Chinese) moderated the relations between self-construals, perceived I-C norm, and CDMP. Cultural tightness-looseness refers to the extent to which a culture has strong norms and a low tolerance of deviant behavior (Pelto, 1968). Gelfand and colleagues (2011) argued that individuals who are chronically exposed to tight (vs. loose) cultures have the continued subjective experience that their actions are subject to strong cultural norms. Therefore, they will have self-guides that are more concerned with not violating dominant cultural values. Compared with the United States, China is characterized by a tight (vs. loose) culture, with a higher degree of situational constraint to strengthen the relative effects of perceived cultural norms (e.g., the I-C norm) on individuals' social behavior. In contrast, individuals in a loose (vs. tight) culture such as the United States will perceive a much weaker situational constraint, thus affording a much wider range for exercising personal choices across different situations. Therefore, individuals' personal cultural orientations (e.g., self-construals) may serve as a relatively stronger predictor for their social behavior in a loose culture. Compared with U.S. society, Chinese society is characterized as a relatively tighter culture (Gelfand et al., 2011). Therefore, we propose that, although both self-construals and the perceived I-C norm will serve as important predictors for individuals' CDMP in U.S. and Chinese cultures, their predictive power will vary due to the cultural difference in tightness-looseness, as hypothesized below:

Hypothesis 3 **(H**3**):** The relationship between the perceived I-C norm and the eight dimensions of CDMP (*consulting with others, desire to please others, willingness to compromise, dependence on others, procrastination, aspiration for an ideal occupation, internal locus of control*, and *effort invested*) will be relatively stronger among Chinese university students (H3a); the relationship between self-construals and the eight dimensions of CDMP (*consulting with others, desire to please others, willingness to compromise, dependence on others, procrastination, aspiration for an ideal occupation, internal locus of control*, and *effort invested*) will be relatively stronger among U.S. university students (H3b).

Method

Procedure

The data collection for this study started in March 2013 and ended in December 2013. Following the approaches used in a previous study (Yang, Stokes, & Hui, 2005) for recruiting Chinese

participants from different universities, we first categorized universities in China into four groups according to a recent university ranking report (Wu, 2012): first tier (top 50 universities), second tier (top 51-100), third tier (top 101-150), and fourth tier (ranked 151st or below). We then contacted collaborators (staff who worked in career centers or professors who taught undergraduate courses) from 3 universities in each subgroup (12 universities in total) to help us circulate the participation invitation of this study to their undergraduate students in class or via email. Students were also encouraged to forward the invitation to other undergraduates they knew, thereby broadening the sampling network. We promised prospective participants that they would receive an electronic report on recent research findings related to adaptive CDMP through email, and did so. To prevent participants from completing the survey more than once, we set up a screening rule in the online survey, which automatically blocked the second attempt to complete the survey from an identical IP address.

We adopted a similar procedure for recruiting American participants. We categorized universities in the United States into four subgroups according to a recent university ranking report (U.S. News & World Report, 2012): first tier (top 50 universities), second tier (top 51-100), third tier (top 101-150), and fourth tier (151st or below). After contacting collaborators from 3 universities in each subgroup (12 universities in total), the invitation to participate was presented by collaborators to undergraduate students via email. Students who received an invitation were also encouraged to invite other undergraduates to take part in this study. We also promised and sent a report on adaptive career decision-making to the American students who completed the survey.

For both English and Chinese versions of the online questionnaire, participants were asked to complete a battery of measures assessing the CDMP, academic major satisfaction, self-construals, the perceived I-C norm (when not otherwise stated, all used a 7-point, Likert-type scale), as well as to provide demographic information including their nationality, age, gender, ranking of their universities, major and year of study, childhood residence in rural or urban areas, parents' education, family wealth, and ethnic group status (*majority group*—Han ethnicity for Chinese participants and Caucasian Americans for U.S. participants, or *other minorities*).

Participants

A total of 945 Chinese participants (531 women and 414 men, 96.5% of total participants) and 929 American participants (467 women and 462 men, 97% of total participants) provided complete and valid responses to the survey, which were used for data analysis. For Chinese participants, their average age was 21.74 ($SD = 1.44$), and their average number of years in their universities was 2.84 ($SD = .78$). In terms of university ranking, 25.7% of them were from the top 50 universities, 33.9% were from the top 51 to 100 universities, 12.6% were from the top 101 to 150 universities, and 27.8% were from universities ranked 151st or lower. As for their current majors, 50.3% majored in natural sciences, 37.1% majored in social sciences, and 12.6% majored in humanities or arts. As for childhood residence, 51.4% were from rural areas, and 48.6% were from urban areas. As for ethnic status, 89.8% were from the *majority* group (Han ethnicity), and 10.2% were from the group of *other minorities*.

The average age of American participants was 21.67 ($SD = 1.94$), and the average number of years spent in their universities was 2.91 ($SD = 0.96$). In terms of university ranking, 33.7% were from the top 50 universities, 21.8% were from the top 51 to 100 universities, 22.3% were from the top 101 to 150 universities, and 22.2% were from universities ranked 151st or below. As for their current majors, 34.3% majored in natural sciences, 41.6% majored in social sciences, and 24.1% majored in humanities or arts. As for childhood residence, 37.8% were from rural areas, and 62.2% were from urban areas. As for ethnic status, 69.4% were from the *majority* group (Caucasian Americans), and 30.6% were from the group of *other minorities*.

Table 1. Descriptive Statistics of CDMP Dimensions, Self-Construals, and Perceived I-C Norm for the American and Chinese Samples.

	American sample (N = 929)			Chinese sample (N = 945)			
	M	SD	C_α	M	SD	C_α	d
1. IG	5.24	1.41	.70	4.23	1.24	.70	**0.76**
2. IP	5.51	1.00	.71	5.08	0.97	.77	0.44
3. LC	4.81	1.39	.78	4.18	1.16	.71	0.49
4. EI	5.36	1.01	.80	4.57	0.97	.70	**0.80**
5. PR	3.88	1.58	.86	4.12	1.25	.85	0.17
6. SP	3.37	1.33	.81	3.33	1.11	.72	0.03
7. CO	4.28	1.45	.82	4.75	1.26	.80	0.35
8. DO	3.07	1.35	.78	3.80	1.13	.70	**0.59**
9. DP	3.27	1.50	.86	4.62	1.03	.70	**1.05**
10. AI	5.10	1.40	.86	4.35	1.33	.78	**0.55**
11. WC	4.78	1.34	.87	4.99	1.01	.79	0.18
12. IS	5.08	1.01	.78	4.77	0.85	.76	0.33
13. ITS	4.47	1.14	.80	5.18	0.86	.77	**0.70**
14. PIC	3.57	.87	.88	4.25	0.85	.91	**0.79**

Note. CDMP = career decision-making profiles; I-C = individualism-collectivism; IG = information gathering; IP = information processing; LC = locus of control; EI = effort invested; PR = procrastination; SP = speed of making the final decision; CO = consulting with others; DO = dependence on others; DP = desire to please others; AI = aspiration for an ideal occupation; WC = willingness to compromise, IS = independent self; ITS = interdependent self; PIC = perceived individualism-collectivism norm. Effect sizes (Cohen's d) higher than 0.5 were bold faced.

Instruments

The CDMP Questionnaire. The American participants completed the English version of CDMP (Gati et al., 2010), and the Chinese participants completed the Chinese version (Tian et al., 2014). Because Item 3 was excluded from the Chinese version of the CDMP in a previous validation study (Tian et al., 2014), to ensure the metric equivalence of this measure across cultures, Item 3 was also dropped from the English version (cf. Cheung & Rensvold, 2002). Participants were asked to respond to the remaining 32 items representing the 11 CDMP dimensions (viz., 2 items representing the *information gathering* dimension and 3 items for each of the other 10 dimensions), as well as an additional warm-up item and 2 validity items. In the present study, the median Cronbach's alpha coefficients for the 11 CDMP dimensions were .80 (range = .70-.85) and .72 (range = .70-.87) for the American and Chinese participants, respectively (see Table 1).

Self-Construal Scale. Interdependent self-construal and independent self-construal were assessed by the scale developed by Yamawaki (2008). The English version of the two sub-scales on interdependent self-construal (six items) and independent self-construal (six items) was directly adopted from the paper of Yamawaki (2008). The Chinese version of this scale was prepared for the present study. First, a professional Chinese translator translated the original items into Chinese. Then, a native English speaker with good Chinese proficiency back-translated these items. After the two translators compared the back-translation with the original scale and refined the Chinese translation through discussion, the Chinese version was finalized. In the present study, Cronbach's alpha coefficients for items on interdependent self-construal were .80 and .77, and Cronbach's alpha coefficients for items on independent self-construal were .78 and .76, for the American and Chinese participants, respectively (see Table 1).

Perceived I-C Norm Scale. Perceived norms were measured by the 22-item scale by which participants were instructed to indicate the extent to which either of two statements (the individualistic norm or the collectivistic norm) is more typical for most people in their country (Fischer et al., 2009). A high score represented a high level of perceived collectivistic (vs. individualistic) norm. In the present study, Cronbach's alpha coefficients for this scale were .88 and .91 for the American and Chinese participants, respectively (see Table 1).

Preliminary Analysis

As the current study involved multiple cross-cultural comparisons, we adopted the Bonferroni correction and set the critical p value as .01 (Shaffer, 1995). A preliminary analysis showed that the Chinese and American samples of university students did not differ in age, $t(1714.72) = .97$, *ns*; year of study, $t(1784.98) = 1.73$, *ns*; or university ranking, $t(1870.76) = 1.80$, *ns*. However, significant differences were found in the distribution of gender, $\chi^2(1, N = 1874) = 6.60$, $p < .01$; major of study, $\chi^2(2, N = 1874) = 64.32$, $p < .01$; type of childhood residence, $\chi^2(1, N = 1,874) = 35.30$, $p < .01$; ethnic background, $\chi^2(1, N = 1874) = 120.74$, $p < .01$; father's education, $t(1872) = 19.63$, $p < .01$; mother's education, $t(1844.22) = 25.01$, $p < .01$; as well as family income, $t(1870.62) = 14.23$, $p < .01$.

To rule out the potential confounding effects of demographic background, we thus incorporated the following variables as control variables when testing hypotheses (Becker, 2005): age, gender (0 = *male*, 1 = *female*), ranking of university (1 = *a top 50 university*, 2 = *top 51 to 100*, 3 = *top 101 to 150*, 4 = *151st or behind*), major of study (1 = *natural sciences*, 2 = *social sciences*, 3 = *humanities or arts*), year of study (1 = *1st year*, 2 = *2nd year*, 3 = *3rd yea*r, 4 = *4th year or more*), type of childhood residence (0 = *rural areas*, 1 = *urban areas*), father's and mother's education (1 = *primary school or below*, 2 = *junior middle school*, 3 = *senior middle school*, 4 = *associate degree*, 5 = *bachelor's degree*, 6 = *master's degree*, 7 = *doctor's degree*), family wealth (1 = *very poor*, 2 = *poor*, 3 = *average*, 4 = *rich*, 5 = *very rich*) and ethnicity (1 = *majority* group: Han ethnicity for Chinese participants and Caucasian Americans for U.S. participants, 2 = *other minorities* group).

Results

Metric Equivalence of CDMP

Before comparing cultural differences in CDMP, we examined its metric equivalence between the Chinese and American participants (Cheung & Rensvold, 2002). Using confirmatory factor analysis (CFA) with AMOS 17, we tested the expected factor structure of the CDMP on the Chinese and American data. First, we conducted a CFA of the CDMP on the pooled sample at the individual level. This model produced satisfactory fit, $\chi^2 = 2416.37$, $df = 409$, $\chi^2/df = 5.91$, comparative fit index (CFI) = .93, incremental fit index (IFI) = .93, root mean square error of approximation (RMSEA) = .05. A multi-group analysis of an 11-factor model including both the Chinese and the U.S. samples yielded an adequate fit to the data, $\chi^2 = 3,137.34$, $df = 818$, $\chi^2/df = 3.84$, CFI = .91, IFI = .91, RMSEA = .04. These results indicate that the hypothesized factor structure was supported across the two cultural groups.

We also tested the factor loading equivalence between the Chinese and U.S. samples. When the loadings for the eight dimensions of CDMP were fixed to be equivalent across the two samples, the model yielded a good fit to the data, $\chi^2 = 3,193.99$, $df = 834$, $\chi^2/df = 3.83$, CFI = .91, IFI = .91, RMSEA = .04. The results also showed that, when constraining the loadings for the two samples, the increase in the chi-square statistic was significant, $\Delta\chi^2 (df = 16) = 56.65$, $p < .01$. Because χ^2 and $\Delta\chi^2$ are sensitive to large sample size, we also considered changes in CFI and IFI

for comparing nested models. Cheung and Rensvold (2002) showed that changes in these indexes are more reliable for assessing nested models than is $\Delta\chi^2$, and that a critical value of .01 is indicative of a significant difference between the two nested models. Although the change in chi-square was significant, changes in CFI and IFI were all less than the critical value of .01. We therefore concluded that the equivalence of the factor loadings of the CDMP between the two groups was supported.

We then constrained the intercepts for the eight dimensions, and the model fit indicators were $\chi^2 = 4{,}190.65$, $df = 858$, $\chi^2/df = 4.88$, CFI = .87, IFI = .87, RMSEA = .05, which suggested that full intercept invariance was not supported. Researchers have argued that full intercept invariance is difficult to achieve for most multifactor rating instruments based on the conventional rules of thumb for evaluating CFA results (Marsh, Hau, & Wen, 2004). Therefore, we tested whether partial intercept invariance could be supported instead (e.g., Church et al., 2012). The results showed that after freeing the intercepts of items for *effort invested, consulting with others*, and *desire to please others*, the model fit increased to a satisfactory level: $\chi^2 = 3{,}589.86$, $df = 849$, $\chi^2/df = 4.23$, CFI = .90, IFI = .90, RMSEA = .04. Because only partial scalar equivalence was supported, some caution is required in interpreting the cultural mean differences with these three dimensions. The descriptive statistics and correlations among variables for American and Chinese participants are shown in Table 1 and Table 2.

Examining Cultural Differences in CDMP Dimensions

To examine mean differences in the eight dimensions of the CDMP between American and Chinese participants, we conducted MANCOVA with the following variables as covariates: age, gender, university ranking, major of study, year of study, childhood residence, father's education, mother's education, family income, and ethnic group status. The results showed that Chinese participants reported higher levels of *consulting with others* than did American participants, $F(1, 1862) = 44.84$, $p < .001$, Cohen's $d = 0.35$, supporting H1a; *desire to please others,* $F(1, 1862) = 415.36$, $p < .001$, Cohen's $d = 1.05$, supporting H1b; and *willingness to compromise,* $F(1, 1862) = 17.50$, $p < .001$, Cohen's $d = 0.18$, supporting H1c.

In contrast, American participants scored significantly lower on *dependence on others, F*(1, 1862) = 116.04, $p < .001$, Cohen's $d = 0.59$, supporting hypothesis H1d; and *procrastination,* $F(1, 1862) = 8.93$, $p < .01$, Cohen's $d = 0.17$, supporting hypothesis H1e. In addition, American participants scored significantly higher than Chinese on *aspiration for an ideal occupation,* $F(1, 1862) = 73.42$, $p < .001$, Cohen's $d = 0.55$, supporting H1f; *internal locus of control, F*(1, 1862) = 112.29, $p < .001$, Cohen's $d = 0.49$, supporting H1g; *effort invested, F*(1, 1862) = 188.66, $p < .001$, Cohen's $d = 0.80$, supporting H1h. These results are shown in Figure 1.

Examining the Mediation Effects of Self-Construals and the Perceived I-C Norm

To examine whether interdependent self-construal, independent self-construal, and the perceived I-C norm served as significant mediators for the effects of culture on the above eight CDMP dimensions, we adopted the procedure proposed by Preacher and Hayes (2008). By bootstrapping, this approach estimates the path coefficients as well as the size of indirect effects, and circumvents the disturbing problem of non-normality in sampling distributions (Preacher & Hayes, 2008). According to this procedure, three criteria should be met to confirm a mediation effect: first, the independent variable must be significantly related to the mediator; second, the mediator must be significantly related to the dependent variable after controlling for the effect of the independent variable; and third, the indirect effect must be significant in a bootstrapping test. Before conducting the analyses, all continuous predictors were centered on their means (Aiken & West, 1991).

Table 2. Inter-Correlations Among CDMP Dimensions, Self-Construals, and Perceived I-C Norm.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. IG		.13***	**.39*****	-.03	-.28***	.05	**.44*****	-.29***	-.08*	-.11**	-.04	-.03	.07*	-.04
2. IP	**.40*****		-.01	**.51*****	.06	**-.36*****	.14***	-.04	.27***	.20***	**.31*****	**.32*****	**.38*****	.13***
3. LC	**.43*****	.17***		-.17***	**-.37*****	.25***	**.40*****	**-.40*****	-.29***	-.16***	-.08*	-.06	.01	-.06
4. EI	**.37*****	**.68*****	.16***		.20***	**-.54*****	.02	.15***	**.30*****	.20***	.26***	.22***	.23***	.13***
5. PR	-.28***	-.11**	**-.31*****	-.17***		**-.46*****	**-.30*****	**.39*****	.23***	.09**	.15***	.01	.08*	.08*
6. SP	.04	-.18***	.15***	-.21***	**-.55*****		-.04	-.25***	**-.33*****	-.06	-.28***	-.09*	-.25***	-.07*
7. CO	.29***	.04	.18***	.08*	-.08*	-.13***		**-.30*****	.01	-.26***	.14***	-.02	.21***	-.07*
8. DO	**-.45*****	-.22***	**-.46*****	-.17***	**.38*****	-.28***	.09***		**.38*****	.11**	.07*	-.07*	.05	.16***
9. DP	**-.38*****	-.11*	**-.36*****	-.11**	.23***	-.14***	.01	**.66*****		.21***	**.37*****	.09**	**.34*****	.12***
10. AI	.13***	.29***	.21***	**.34*****	-.26***	.05	-.01	-.11**	.01		.02	.23***	.13***	.08*
11. WC	.01	**.30*****	-.08*	.16***	.13***	-.15***	-.01	.09*	.14***	.10**		.16***	**.30*****	.08*
12. IS	.21***	**.38*****	.16***	**.38*****	-.26***	.11**	-.06	-.22***	-.13***	**.38*****	.08*		**.36*****	.03
13. ITS	-.17***	.16***	-.12***	.14***	.08*	-.15***	.09*	**.32*****	**.49*****	.16***	.21***	.13***		.08*
14. PIC	-.20***	-.05	-.13***	-.04	.04	.04	-.15***	.07*	.07*	.06	-.02	.01	.01	

Note. The results for Chinese participants are shown above the diagonal. CDMP = career decision-making profiles; I-C = individualism-collectivism; IG = information gathering; IP = information processing; LC = internal locus of control; EI = effort invested; PR = procrastination; SP = speed of making the final decision; CO = consulting with others; DO = dependence on others; DP = desire to please others; AI = aspiration for an ideal occupation; WC = willingness to compromise; IS = independent self; ITS = interdependent self; PIC = perceived individualism-collectivism norm.
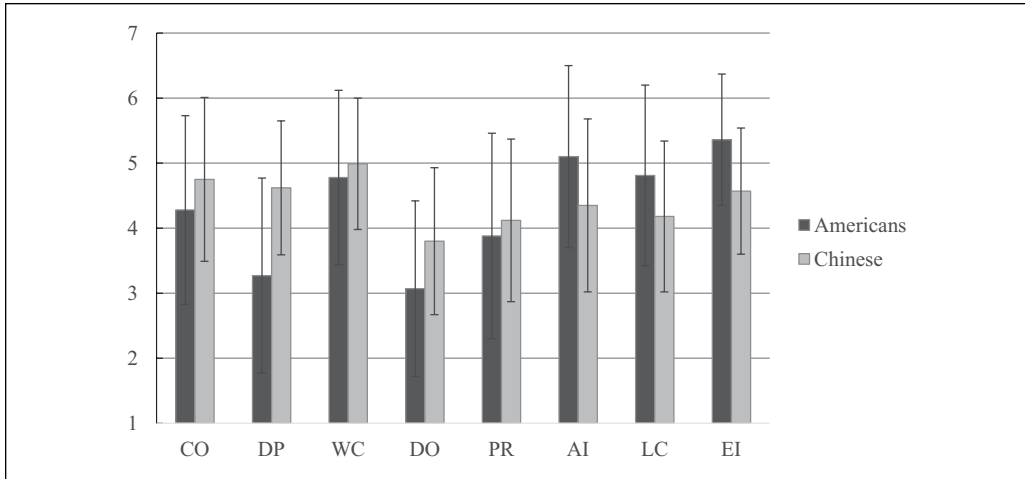*p < .05. **p < .01. ***p < .001. Correlations higher than 0.3 were bold faced.

Figure 1. Cultural differences in CDMP.
Note. The differences of all dimensions of CDMP among Americans and Chinese are significant (*p* < .01). CDMP = career decision-making profiles; CO = consulting with others; DP = desire to please others; WC = willingness to compromise; DO = dependence on others; PR = procrastination; AI = aspiration for an ideal occupation; LC = internal locus of control; EI = effort invested.

First, we examined the relations between culture and the three mediators. The results showed that after controlling for the effect of participants' demographics (gender, age, university ranking, year and major of study, childhood residence, father's education, mother's education, family income, and ethnic group status), culture significantly predicted the interdependent self (β = .35, *t* = 12.78, *p* < .001), the independent self (β = −.18, *t* = −6.18, *p* < .001), and the perceived I-C norm (β = .37, *t* = 12.22, *p* < .001). Second, we examined whether these mediators had significant effects on CDMP dimensions after controlling the effects of demographics and culture. To examine the effects of these three mediators at the same time, we included all these three variables together in the regression models. Third, we used bootstrapping to examine the indirect effects of culture on CDMP dimensions through these mediators.

Based on the above procedures, all the significant indirect effects are reported in Table 3, which supported the significant mediation role of interdependent self-construal for the relations between culture and six dimensions of CDMP (*consulting with others, desire to please others, willingness to compromise, dependence on others, procrastination*, and *internal locus of control*); the mediation role of independent self-construal for the relations between culture and seven dimensions of CDMP (*consulting with others, desire to please others, dependence on others, procrastination, aspiration for an ideal occupation, internal locus of control*, and *effort invested*); as well as the mediation role of the perceived I-C norm for the relations between culture and *desire to please others, dependence on others, procrastination*, and *internal locus of control*.

Examining the Relative Strength of Self-Construals and Perceived I-C Norm in Predicting CDMP Across Cultures

To examine whether culture moderated the relations between interdependent self, independent self, the perceived I-C norm, and the eight CDMP dimensions, hierarchical regression analysis was conducted. Participants' gender, age, university ranking, year in university, major (dummy coded: major in natural sciences as reference group), childhood residence, father's education, mother's education, family income, and ethnic status were entered in Step 1 to control for their

Table 3. Examining the Mediation Effects of Interdependent Self, Independent Self, and Perceived I-C Norm.

CDMP Dimensions	Regression coefficients in predicting CDMP dimensions after controlling for culture			Indirect effects of culture on CDMP dimensions through mediators (99% CI)		
	Interdependent self	Independent self	Perceived I-C norm	Interdependent self	Independent self	Perceived I-C norm
CO	.21***	−.11**		[.10, .22]	[.01, .05]	
DP	.59***	−.23***	.10***	[.36, .51]	[.02, .08]	[.03, .12]
WC	.27***			[.15, .25]		
DO	.32***	−.29***	.15***	[.18, .30]	[.03, .10]	[.05, .15]
PR	.17***	−.28***	.09*	[.08, .19]	[.02, .10]	[.01, .12]
AI		.42***			[−.13, −.04]	
LC	−.11***	.13***	−.14***	[−.14, −.03]	[−.05, −.01]	[−.16, −.05]
EI		.30***			[−.10, −.03]	

Note. CDMP = career decision-making profiles; I-C = individualism-collectivism; CI = confidence interval; CO = consulting with others; DP = desire to please others; WC = willingness to compromise; DO = dependence on others; PR = procrastination; AI = aspiration for an ideal occupation; LC = internal locus of control; EI = effort invested.
*p < .05. **p < .01. ***p < .001.

effects on the outcome variables. In Step 2, culture (dummy coded; United States = 0, China = 1), interdependent self-construal, independent self-construal, and the perceived I-C norm were entered. In Step 3, the interaction terms (Culture × Interdependent self-construal, Culture × Independent self-construal, Culture × Perceived I-C norm) were entered.

The results showed significant interactions between culture and interdependent self-construal in predicting *desire to please others* (β = −.23, t = −4.17, p < .001), *dependence on others* (β = −.31, t = −5.27, p < .001), and *internal locus of control* (β = .22, t = 3.52, p < .001). In addition, the results showed that the interactions between culture and independent self-construal were significant when predicting *desire to please others* (β = .23, t = 3.93, p < .001), *dependence on others* (β = .22, t = 3.60, p < .001), *procrastination* (β = .37, t = 5.08, p < .001), *internal locus of control* (β = −.33, t = −5.02, p < .001), and *effort invested* (β = −.19, t = −3.90, p < .001). The above interactions provided substantial support for the hypotheses that among American participants, both interdependent and independent self-construals served as relatively stronger predictors for CDMP. At the same time, we also found an interaction between culture and interdependent self-construal in predicting *consulting others* (β = .25, t = 3.80, p < .001), and an interaction between culture and perceived I-C norm in predicting *effort invested* (β = .17, t = 3.43, p < .01), but the directions of these two interactions were not consistent with the hypotheses. These significant interactions are summarized in Tables 4 and 5, which showed the relative strength of self-construals and the perceived I-C norm in predicting CDMP across these two cultures.

Discussion

The current research examined cultural differences in CDMP between American and Chinese university students, as well as the underlying mechanisms potentially leading to these profile differences. Consistent with our hypotheses, Chinese participants scored significantly higher *consulting with others, desire to please others, willingness to compromise, dependence on others, procrastination*, but lower on *aspiration for an ideal occupation, internal locus of control*, and *effort invested* in career decision-making than did the American participants. These cultural differences were partially mediated by individuals' self-construals and the perceived I-C norm. The

Table 4. Hierarchical Regression: The Interactions Between Culture and Self-Construals, and Interactions Between Culture and Perceived I-C Norm on CDMP.

Outcomes	Culture × Interdependent self			Culture × Independent self			Culture × Perceived I-C norm		
	β	t	p	β	t	p	β	t	p
CO	.25	3.80	<.001						
DP	−.23	−4.17	<.001	.23	3.93	<.001			
WC									
DO	−.31	−5.27	<.001	.22	3.60	<.001			
PR				.37	5.08	<.001			
AI									
LC	.22	3.52	<.001	−.33	−5.02	<.001			
EI				−.19	−3.90	<.001	.17	3.43	<.01

Note. CDMP = career decision-making profiles; I-C = individualism-collectivism; CO = consulting with others; DP = desire to please others; WC = willingness to compromise; DO = dependence on others; PR = procrastination; AI = aspiration for an ideal occupation; LC = locus of control; EI = effort invested.

Table 5. The Regression Coefficients of Interdependent Self, Independent Self, and Perceived I-C Norm in Predicting CDMP Dimensions in the United States and Chinese College Students.

CDMP dimensions	Interdependent self		Independent self		Perceived I-C norm	
	United States	China	United States	China	United States	China
CO	β = .13, p < .01	β = .37, p < .001				
DP	β = .66, p < .001	β = .44, p < .001	β = −.32, p < .001	β = −.06, ns		
WC						
DO	β = .41, p < .001	β = .12, p < .01	β = −.37, p < .001	β = −.12, p < .01		
PR			β = −.42, p < .001	β = −.06, ns		
AI						
LC	β = .17, p < .001	β = −.03, ns	β = .25, p < .001	β = −.10, p < .05		
EI			β = .37, p < .001	β = .16, p < .001	β = −.03, ns	β = .13, p < .001

Note. CDMP = career decision-making profiles; I-C = individualism-collectivism; CO = consulting with others; DP = desire to please others; WC = willingness to compromise; DO = dependence on others; PR = procrastination; AI = aspiration for an ideal occupation; LC = locus of control; EI = effort invested.

results also provided preliminary support for the prediction that the relative effects of self-construals on CDMP were generally stronger in American culture, whereas the relative effects of the perceived I-C norm were somewhat stronger in Chinese culture.

Theoretical Implications

Cultural differences between the East and West in I-C have been extensively investigated and well established by previous research (e.g., Hofstede, 2001; Markus & Kitayama, 1991; Triandis,

1995). The current research extended these conceptualizations into the field of vocational psychology and revealed that, on the dimensions of *consulting with others, desire to please others*, and *willingness to compromise*, Chinese scored significantly higher than American university students. These findings suggest that Chinese adopt a more relational approach when making their career decisions, as relations with significant others are the defining features of their self-concept (Hofstede, 2001; Markus & Kitayama, 1991). Second, the results also showed that Americans scored significantly higher than Chinese on the agentic dimensions of CDMP (i.e., *effort invested, internal locus of control, aspiration for an ideal occupation*, less *dependence on others*, and *procrastination*), suggesting that the individualistic values may drive Americans to form a sense of personal agency and adopt a more self-directive style of career decision-making (Kwan, Hui, & McGhee, 2010; Markus & Kitayama, 1991; Singelis, 1994). As these model fit indicators suggested that the full intercept invariance was not supported on the dimensions of *effort invested, consulting with others*, and *desire to please others*, the mean differences identified in this study may reflect the additive bias or different scale metrics of these dimensions across cultures. Future research should continue to examine how to improve the full scalar invariance of CDMP at the item level, to reduce the potential for measurement bias in cross-cultural comparison.

The current research further examined the mediation roles of self-construals and the perceived I-C norm in the dynamic process of career decision-making. The results showed that cultural differences in *consulting with others, willingness to compromise, aspiration for an ideal occupation*, and *effort invested* were mediated by self-construals, but not by the perceived I-C norm. The above results suggest that cultural differences in these dimensions could be attributed to individuals' internalization of I-C values into their self-construals. In contrast, cultural differences in *desire to please others, dependence on others, procrastination*, and *internal locus of control* were mediated by both self-construals and the perceived I-C norm. These results suggest that cultural differences in these dimensions could also be attributed to the tendency to internalize and conform to dominant cultural norms of individualism or collectivism. As both self-construals and perceived I-C norm mediated the cultural effects on *desire to please others, dependence on others, procrastination*, and *internal locus of control*, these dimensions may capture both the other-oriented and self-orientated strategies in individuals' career decision-making process.

Although the mediation roles of self-construals and perceived I-C norm have been supported in this study, these models only provide some general explanations for these cultural differences. Research has demonstrated that cultural differences in I-C are associated with more specific differences in cognitive (e.g., dialectical vs. linear thinking styles) and motivational (e.g., approach vs. avoidance) processes (Cross et al., 2011; Varnum et al., 2010). Future research should continue to examine whether cultural differences in CDMP could be better explained by these mediators. It is also important to examine the role of other cultural dimensions (e.g., power distance, uncertainty avoidance, indulgence vs. restraint; Minkov, 2013) and other country-level characteristics in this process. For example, the higher level of *willingness to compromise* among Chinese students may not only reflect the consideration of significant others' opinions in their career decision-making, but also reflect the tendency to cope with the fast-changing employment patterns in China (Guan et al., 2014; Su & Meng, 2011).

The results of the current research also revealed that among American students, the effects of self-construals on *desire to please others, dependence on others, procrastination, internal locus of control*, and *effort invested* were relatively stronger than the effects revealed among Chinese students. These results suggest that in a loose (vs. tight) culture such as the American, individuals will perceive that they are functioning within a social environment with weaker situational constraints, affording them a much wider range of personal choices for behavior across different situations. Therefore, individuals' personal cultural orientation (e.g., interdependent self-construal and independent self-construal) serves as a relatively stronger predictor for their social behavior in a loose culture (Gelfand et al., 2011). However, when predicting *effort invested*, it was found that the effect of the perceived I-C norm was stronger among Chinese university students, which

suggests that for individuals who are chronically exposed to tight (vs. loose) cultures, the perceived collectivistic norm actually increases the complexity of making career decisions and motivates individuals to put more efforts in this process. Future research may continue to examine the mechanisms underlying this relationship.

Previous research has documented the main effects of cultural difference in tightness-looseness on various domains of social behavior (Gelfand et al., 2011), and the current research further revealed the potential moderating effects of this cultural dimension on the driving forces of individuals' CDMP. However, in the current research, we did not directly measure individuals' perceived cultural tightness-looseness, and so cannot provide empirical evidence on the moderation role of cultural tightness-looseness. Future research should incorporate relevant measures on cultural tightness-looseness to empirically examine this possibility. In addition, the results also showed that interdependent self served as a stronger predictor for *consulting with others* among Chinese students compared with American students, a finding that did not support our hypothesis. Future research should continue to examine other potential moderators beyond cultural tightness-looseness that can explain this interaction.

In addition to the cultural differences in the mean levels of CDMP, future research should also continue to examine the relative adaptability of CDMP across cultural settings by testing whether culture moderates the effects of CDMP on career-related outcomes. As suggested by previous research (Kwan, Bond, & Singelis, 1997), in a collectivistic cultural system, it is important to nurture one's social bonds while pursuing one's individual interests, needs, and development. Therefore, it is possible that the relational approach to career decision-making (e.g., *consulting with others, desire to please others, dependence on others*) may produce more beneficial effects for individuals in a collectivistic culture. In contrast, the CDMP dimensions that reflect individualistic values (e.g., *aspiration for an ideal occupation, internal locus of control*) may be more functional in an individualistic culture (Gati & Levin, 2012). Therefore, these CDMP dimensions may have different predictive power in the United States and China on short-term career-related outcomes, such as career decision-making efficacy and career decision-making difficulty, as well as long-term outcomes, such as job search success and career success. These important research questions remain to be examined in future research.

Practical Implications

The findings of the current research also carry important implications for career education and counseling practices. First, as cultural groups differ from each other on the average levels of CDMP, counselors should adopt different criteria when interpreting the CDMP for individuals from different cultural groups. By identifying the unique CDMP that characterizes different groups, career educators and counselors may consider tailoring interventions to the need profiles of each client (Gati et al., 2010; Gati & Levin, 2014; Savickas & Walsh, 1996; Stead, 2004). Second, the mediating mechanisms revealed in this study suggest that individuals may adopt different strategies in career decision-making due to both their tendency to conform to cultural norms and their self-construals. It is important to identify the forces driving individuals' CDMP to improve the effectiveness of career interventions.

Limitations

Despite the theoretical and practical implications discussed above, the current research has some possible limitations. First, the results of the current research were correlational in nature and could not determine causal relationships. It is possible that, as we have argued, individuals' perceived cultural norm and self-construals lead to different levels of CDMP. However, it is also possible that different levels of CDMP may give rise to different perceptions of the cultural norm and self-construals. Future research should address this possible limitation by corroborating the

current findings using experimental or longitudinal study designs. Second, in the current research, we attempted to collect data from university students of diverse backgrounds in two cultures. However, there still exists the possibility that the participants enrolled in this study were not fully representative of their host student populations and that the findings revealed in this study cannot be generalized to other American and Chinese university students. Future research should seek to corroborate the findings of the current study by using more representative samples.

Declaration of Conflicting Interests

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