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The Role of Self-Construal as an Intervening Variable between Culture and Leisure Constraints: A Comparison of Canadian and Mainland Chinese University Students

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Building upon Walker, Jackson, and Deng's (2007) article on culture and constraints, this study explores how the self-construals of Canadian university students in Canada and Chinese students in Mainland China influence their perception of how intrapersonal, interpersonal, and structural constraints affect starting a new leisure activity. English and simplified Chinese language questionnaires, distributed onsite, resulted in useable data from 227 Canadian and 216 Mainland Chinese participants. Statistical analyses suggested that Canadian and Chinese students had different types of self-construal and, consequently, were constrained differently.

KEYWORDS: *Constraint, culture, leisure, self-construal.*

Introduction

Although "leisure constraints research is now well-established as a recognizable and distinct sub-field within leisure studies" (Jackson, 2005, p. 10), serious knowledge gaps remain. Crawford and Jackson (2005), for example, contended that little research has been conducted on intrapersonal constraints (i.e., individual psychological qualities that affect the formation of leisure preferences) and interpersonal constraints (i.e., social factors that affect the formation of leisure preferences) compared with structural constraints (i.e., factors that occur after leisure preferences are formed but before actual leisure participation takes place; Crawford & Godbey, 1987). Similarly, there has been little research on how constraints may be similar or different across cultures. Shaw and Henderson (2005) stated that, "research involving people of different cultural backgrounds would greatly enhance the constraints literature" (p. 31), and Chick and Dong (2005) argued that,

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"the disregard of culture as an independent variable in the study of leisure constraints is itself highly constraining" (p. 179).

In response to these concerns, Walker, Jackson, and Deng (2007) conducted a study of Canadian and Mainland Chinese university students' constraints on starting a new leisure activity. Of the 10 intrapersonal constraints they examined 9 differed significantly, with Chinese students being more intrapersonally constrained than Canadians in all but one instance. A single combined measure of intrapersonal constraints was also compared with similar indices for interpersonal and structural constraints. All three constraints categories differed significantly, with Chinese students being more intra- and interpersonally constrained, whereas Canadian students were more structurally constrained.

Valentine, Allison, and Schneider (1999) believed there are many benefits that can be derived from conducting such research, including the "opportunity to test and validate the generalizability of leisure phenomenon and constructs" (p. 242). Although we agree with Valentine et al., we are also cognizant of Hutchison's (2000) call to include intervening variables when conducting research of this kind. Walker, Deng, and Dieser (2005) provided an in-depth discussion of how one intervening variable—self-construal—could contribute to our understanding of the relationship between macro-level structures and micro-level processes. Self-construal refers to how people think about themselves in relation to others (Walker, 2007a). According to Markus and Kitayama (1991), whereas people in the United States and Canada (or, more accurately, European Americans and European Canadians), as well as people in Western Europe, are more likely to have *independent* self-construals (and, therefore, value being unique, asserting oneself, expressing one's inner attributes, and promoting one's own goals), people in or from Asia, Africa, and Southern Europe are more likely to have *interdependent* self-construals (and, therefore, value belonging, fitting in, maintaining harmony, restraining oneself, and promoting others' goals). Markus and Kitayama posited that the type of self-construal a person has affects his or her cognitions, emotions, and motivations and, based on this proposition, Walker and Virden (2005) believed that the same effect may hold true for how he or she conceives of, and is affected by, intrapersonal constraints and possibly interpersonal and structural constraints as well. Thus, the purpose of this study is to build upon Walker's et al. (2007) article by exploring how the self-construals of Canadian university students in Canada and Chinese university students in Mainland China influence their perception of how intrapersonal, interpersonal, and structural constraints affect starting a new leisure activity.

Literature Review

According to Chick and Dong (2005), culture is logically prior to intrapersonal, interpersonal, and most structural leisure constraints (p. 170). As they made clear, however, although sequencing these variables is easy, con-

ceptualizing one in particular—culture—is notoriously difficult. Chick and Dong stressed Goodenough's (1996) differentiation between culture as a phenomenal order (i.e., group characteristics that allow distinct cultures to be distinguished from one another) and culture in its ideational sense (i.e., "what members of a human group have to know in order to function acceptably as members of that group;" Goodenough, p. 293). Typically the phenomenal approach informs the ideational approach (Chick & Dong, p. 172; see also Chick, 2006).

If culture is antecedent to leisure constraints, the question then arises as to where self-construal "fits" in this relationship. Based on Markus and Kitayama's (1991) statements, Walker and Virden (2005) proposed that self-construal should be conceived of as an intervening variable between culture (as understood phenomenally) and the three kinds of leisure constraints. It is worth noting that this sequencing is consistent with that of other cross-cultural leisure scholars (e.g., Li, Chick, Zinn, Absher, & Graefe, 2007).

Markus and Kitayama's (1991) conceptualization of self-construal has, however, been criticized for being overly broad. As a consequence, various alternative frameworks have been put forth. Triandis (1995), for example, developed a model of the self that includes horizontal (i.e., equality) and vertical (i.e., hierarchy) dimensions as well as independent and interdependent dimensions (or what he refers to as individualism and collectivism). The result is a two-by-two matrix composed of horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism. As with Markus and Kitayama's (1991) conceptualization, this model recognizes that individuals, and the cultures that encompass them, are multi-dimensional but that some dimensions are predominant over others (see also Chick, 2006; Li et al., 2007). Thus, Triandis (1995) believes that "a vertical individualistic culture, such as the United States, may be composed as follows: horizontal individualism, 40 percent; vertical individualism, 30 percent; horizontal collectivism, 20 percent; and vertical collectivism, 10 percent" (p. 47). In contrast, based in part on a content analysis of Lew's (1994, as cited in Triandis, 1995) values study, Triandis believes that Chinese are approximately 70% collectivist (30%-40% horizontal, 30%-40% vertical) and 30% individualist (15% horizontal, 15% vertical). Canadians, according to Triandis (1995), are less individualistic than Americans (p. 168), but whether they are the same, more, or less, vertical and horizontal is unspecified.

Walker and Wang (2005) conducted a study of Chinese/Canadians (i.e., self-identified as Chinese or Chinese-Canadian) and British/Canadians (i.e., self-identified as English, Irish, Scottish, Welsh, Canadian, or a combination thereof) that included all four types of self-construal. Although Chinese/Canadians were much more likely than expected to be vertical collectivists, and British/Canadians were much more likely than expected to be horizontal collectivists, the two groups were similar in terms of horizontal and vertical individualism (with horizontal collectivism, however, being more than twice as common for both groups). These results suggest that Chinese/Ca-

nadians, much like Triandis' (1995) finding with Chinese, are most apt to be vertical collectivists or horizontal collectivists, whereas British/Canadians are most likely to be horizontal collectivists or horizontal individualists.

We anticipate Canadian and Chinese university students will exhibit self-construal patterns similar to the above and, as Walker and Virden (2005) proposed, we expect the type of self-construal a student has will affect his or her perception of how different kinds of intrapersonal constraints inhibit or prohibit him or her from starting a new leisure activity. Specifically, we hypothesize the following:

H1: Canadian horizontal individualists' affective (*H1a*) attitudes and instrumental attitudes (*H1b*) toward starting a new leisure activity will constrain them more compared with horizontal collectivists because personal achievement is very important for individualists (Nelson & Shavitt, 2002; Triandis, 1995), and leisure may be perceived as an impediment to its realization.

H2: Canadian horizontal individualists will report injunctive norms (i.e., others' disapproval; *H2a*) and social support (*H2b*) for starting a new leisure activity constrain them more compared with horizontal collectivists because horizontal individualists' significant others will likely have the same type of self-construal.

H3: Canadian horizontal individualists will be more constrained by the autonomy/personal choice (*H3a*) whereas horizontal collectivists will be more constrained by autonomy/mutual choice (*H3b*), when considering starting a new leisure activity, because individualism is associated with the former whereas collectivism is associated with the latter (Iyengar & Lepper, 1999; Walker et al., 2005).

H4: Canadian horizontal collectivists will report that the need for relatedness is a greater constraint on starting a new leisure activity compared with horizontal individualists because this need is also associated with collectivism (Iyengar & Lepper, 1999).

H5: Chinese vertical collectivists, compared with horizontal collectivists, will report being more constrained by injunctive norms (*H5a*), role fulfillment (*H5b*), and the need for autonomy/mutual choice (*H5c*) when considering starting a new leisure activity, because verticals have a strong sense of hierarchy and duty and place great importance on roles and statuses (Triandis, 1995). Reciprocally:

H6: Chinese horizontal collectivists will report that the need for autonomy/personal choice is more constraining than will vertical collectivists.

We do not propose any hypotheses about how the type of self-construal a Chinese or Canadian student has will affect his or her perception of interpersonal and structural constraints on starting a new leisure activity. Simply put, the lack of cross-cultural research in this area means that there has been no speculation whatsoever on what potential differences may exist. Because this is a possibility, however, we will perform data analyses within each group

to determine if self-construal influences perceptions of interpersonal and structural constraints and, if so, we will return to literature on culture and self-construal to try to explain these findings.

Methods

Both Canadian and Chinese students completed a brief questionnaire that focused on starting or not starting a new leisure activity. In this respect we follow Raymore, Godbey, Crawford, and von Eye (1993), reasoning that by not targeting a specific activity we eliminate concerns about participants who have either already negotiated intrapersonal constraints and formed a preference or who have failed to negotiate intrapersonal constraints and are now uninterested. Sixteen intrapersonal constraint items (see Walker, Jackson, & Deng, 2007) and seven interpersonal and eight structural constraint items (see Raymore et al., 1993), were used. Students indicated the extent to which they disagreed (strongly = 1, moderately = 2, slightly = 3) or agreed (slightly = 4, moderately = 5, strongly = 6) with these 31 constraint items. Students used the same scale to indicate the extent to which they agreed or disagreed with 16 self-construal items (i.e., 4 items for each of Triandis', 1995, 4 types of self-construal). Fifteen of these self-construal items had been used previously in a study by Triandis and Gelfand (1998), whereas the sixteenth item, based on the results of Soh and Leong's (2002) confirmatory factor analysis with American and Singaporean students, was replaced with an item from Triandis' original inventory. Socio-demographic information was also obtained.

The questionnaire was translated from English into simplified Chinese by one of the authors and then a second individual—who had not seen the original English-language questionnaire—translated it back. The original English-language questionnaire and the translated English-language questionnaire were compared and revisions were made as necessary (i.e., back-translation and de-centering: Brislin, 1970).

A convenience sample of students attending a large metropolitan Canadian university (n = 315) and a large metropolitan Mainland Chinese university (n = 251) was obtained. In Canada, students in three first year general survey courses were invited to participate in the study during the last 20 minutes of their regular class time. If they chose to do so, they were remunerated $1 Canadian afterwards; if they chose not to do so, they were free to leave the class early. In China, students were approached at a university' various public areas by a *Pǔtōnghuà* (i.e., Mandarin)-speaking Chinese research associate, and asked if they would participate in the study. If they chose to do so they were remunerated 5 Chinese yuan (approximately $1 Canadian) afterwards.

Data analysis consisted of six stages:

1. Standardized Cronbach coefficient alphas were calculated, by cultural group (i.e., Chinese and Canadian), for the four types of self-construal.

2. A MANOVA was conducted on self-construal using cultural group as the independent variable. Because the MANOVA's result was significant, a series of follow-up ANOVAs were performed.
3. Despite cluster analysis' relevance for cross-cultural research, few studies have applied it (van de Vijver & Leung, 1997, p. 112). Thus, cluster analyses were executed to examine if different self-construal "patterns" were present within each group, as Triandis (1995) affirms. The number of clusters was determined using the Pseudo-*F* method, a stopping technique that has demonstrated better-than-average results in Monte Carlo evaluations (Milligan & Cooper, 1985). Paired sample t-tests were used to determine where there were significant differences between the four types of self-construal, by cluster. Chi-square tests between the clusters within each group were also calculated to determine if any significant socio-demographic differences existed.
4. A MANOVA was conducted on the ten intrapersonal constraints using the clusters as the independent variable. Because the MANOVA's result was significant, linear contrasts between the clusters within each group were performed.
5. A MANOVA was conducted on the overall intrapersonal, interpersonal, and structural constraints using the clusters as the independent variable. Because the MANOVA's result was significant, linear contrasts between the clusters within each group were performed.
6. Because validating cluster patterns is critical (Hair & Black, 2000), cluster analyses were also conducted on a sample of Canadian and Mainland Chinese university students who had participated in a different study (Walker & Wang, in press). Although Walker and Wang also employed Triandis' (1995) conceptualization, it must be acknowledged that a minority of their self-construal items were different, as was the number of items per scale, and the number of study participants.

Finally, although the customary $p < .05$ is reported, to protect against Type I errors $p < .01$ is used depending upon the number of statistical analyses being conducted (i.e., a Bonferroni-type adjustment technique; cf. Li et al., 2007).

Results

Socio-Demographic Information

Study participants in Canada whose culture was other than solely Canadian or whose preferred spoken language was other than English, were excluded, as were participants in China whose culture was other than solely Chinese or whose preferred spoken language was other than Chinese, Cantonese, *Pǔtōnghuà* (i.e., "Mandarin"), or a local dialect. After doing so, a total of 227 Canadian and 216 Chinese university students remained in the

study (72.1% and 86.1%, respectively). Moreover, these groups are also sufficiently large for the planned statistical analyses (Lauter, 1978), yet sufficiently homogeneous to forestall concerns about being overly broad and all-inclusive; a critique often, and accurately, aimed at our field (Stodolska & Yi-Kook, 2005). The Canadian group had near equal numbers of males (n = 114) and females (n = 112; one individual unknown), whereas the Chinese group had more females (n = 129) than males (n = 87). Chinese participants were slightly older than Canadian participants (M = 22.7 vs. M = 21.6 years), but less likely to be married/partnered (6% vs. 21%).

Culture and Self-Construal

Triandis' (1995) four self-construal scales, composing items, and standardized Cronbach coefficient alphas are reported in Table 1. One item was deleted from the horizontal collectivism scale and one item was dropped from the vertical collectivism scale. Deletion of these items improved the

TABLE 1
Self-Construals, Items, and Standardized Cronbach Coefficient Alphas, By Culture

Self-Construal (Comments)	Cronbach Alpha	
	Canadian	Chinese
Horizontal Collectivism	.66	.65
The wellbeing of the students I work with is important to me		
If a student I work with gets an award, I feel proud		
I feel good when I cooperate with others		
To me, pleasure is spending time with others (Deleted)		
Vertical Collectivism	.59	.66
It is important to me that I respect decisions made by my groups (Deleted)		
Family members should stick together, no matter what sacrifices are required		
Parents and children must stay together as much as possible		
It is my duty to take care of my family, even when I have to sacrifice what I want		
Horizontal Individualism	.62	.63
My personal identity independent from others is very important to me		
I would rather depend on myself than on others		
I often "do my own thing"		
I rely on myself most of the time; I rarely rely on others		
Vertical Individualism	.72	.46
It is important to me that I do my work better than others can do it		
Winning is everything		
Competition is the law of nature		
When another person does better than I do, I get tense and aroused		

Cronbach coefficient alphas to acceptable levels (Nunnally, 1967). Although the Cronbach coefficient alpha for vertical individualism was low for Chinese, based on Cronbach's (1990, as cited in Triandis, Chan, Bhawuk, Iwao, & Sinha, 1995) comments about the tradeoff between fidelity (i.e., only a few constructs needing to be measured, so many items each) and bandwidth (i.e., many constructs needing to be measured—as in this case, four types of self-construal—so few items each), we will continue to use this scale as it is currently configured.

A MANOVA conducted on self-construal using group was significant, Wilk's $\Lambda = .75$, $F(4, 438) = 35.95$, $p < .0001$. This analysis' η^2 of 0.25 signifies a large effect size (Weinfurt, 1995). Table 2 reports the results of the ANOVAs performed on each of the four types of self-construal, by cultural group. Only the horizontal collectivism scale's means did not differ significantly between Canadian and Chinese university students. Of Triandis' (1995) three remaining types of self-construal, Canadian students were higher on horizontal individualism, whereas Chinese students were higher on vertical collectivism and vertical individualism. Effect sizes were small, medium to large, and large, respectively (Cohen, 1988, as cited in Aron & Aron, 1999).

To facilitate interpretation, these findings are also presented in matrix form (i.e., individualism/collectivism, vertical/horizontal) with each type of self-construal further sub-divided by culture (i.e., Chinese/Canadian). As shown in Figure 1, self-construals that differed significantly are shaded, with darker shading indicating which culture is in *greater* concordance with a specific self-construal and lighter shading indicating which culture is in *lesser* concordance.

Ten cluster analyses were performed using group and the number of clusters requested. Examination of the Pseudo-*F* Statistic results indicated that a two-cluster solution was optimal for both Canadian students (Pseudo-

TABLE 2
Self-Construal Means, Standard Errors, and Analysis of Variance Results, By Culture

	Canadian		Chinese		ANOVA		
Self-Construal	*M*	*SE*	*M*	*SE*	*df*	*F*	R^2
Horizontal Collectivism	4.87	0.05	4.99	0.05	1,441	3.26	.01
Vertical Collectivism	4.28	0.06	4.79	0.06	1,441	33.51*	.07
Horizontal Individualism	4.64	0.05	4.30	0.05	1,441	20.52*	.04
Vertical Individualism	3.53	0.06	4.17	0.06	1,441	57.47*	.12

Note: Self-construal was measured using a six-point scale, with higher mean scores indicating greater concordance with that type of self-construal.
* $p < .0001$.

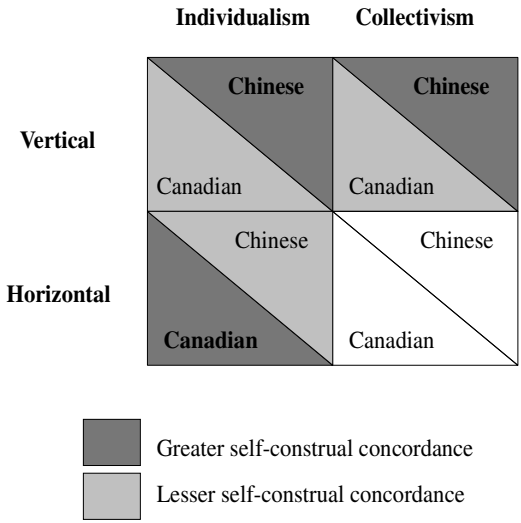

Figure 1. Self-construal concordance between cultures.

$F = 63.86$) and Chinese students (Pseudo-$F = 50.55$). As reported in Table 3, for Canadians, there were fewer students in the first cluster than the second cluster (36% and 64%, respectively) whereas, for Chinese, there were more students in the first cluster than the second cluster (84% and 16%, respectively). More importantly, based on the results of the paired sample t-tests, the self-construal cluster patterns appear to vary within groups. Specif-

TABLE 3
Cluster Analysis of Self-Construal, by Culture

	Canadian				Chinese			
	Cluster 1		Cluster 2		Cluster 1		Cluster 2	
Self-Construal	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Horizontal Collectivism	4.45_b	0.77	5.11_a	0.55	5.08_a	0.61	4.54_a	0.88
Vertical Collectivism	4.34_b	0.90	4.25_c	0.95	5.08_a	0.62	3.26_c	0.78
Horizontal Individualism	4.77_a	0.71	4.58_b	0.74	4.38_b	0.82	3.87_b	1.05
Vertical Individualism	4.51_b	0.51	2.99_d	0.76	4.18_b	0.74	4.11_b	0.84
Participants (%)	81 (36%)		146 (64%)		182 (84%)		34 (16%)	

Note: Self-construal was measured using a six-point scale, with higher mean scores indicating greater concordance with that type of self-construal. Means in the same column that do not share subscripts differ at $p < .05$.

ically: (1) Canadian students in cluster one were highest on horizontal individualism (hereafter referred to as horizontal individualists); (2) Canadian students in cluster two were highest on horizontal collectivism and lowest on vertical individualism (i.e., horizontal collectivists); (3) Chinese students in cluster one were equally high on horizontal and vertical collectivism and equally low on horizontal and vertical individualism (i.e., bi-collectivists); and (4) Chinese students in cluster two were highest on horizontal collectivism and lowest on vertical collectivism (i.e., horizontal collectivists).

To facilitate interpretation, these findings are also presented in matrix form (i.e., individualism/collectivism, vertical/horizontal); but instead of segmenting each type of self-construal by culture it is now sub-divided by cluster. As shown in Figures 2 and 3, darker shading indicates a cluster was in *greatest* concordance with this type of self-construal while lighter shading indicates the same cluster was in *least* concordance with this type of self-construal. (*Note:* For simplicity's sake self-construals that are in-between are not identified.)

Chi-square tests between the clusters within each culture group were calculated to determine if any significant socio-demographic (e.g., sex, marital status, education completed, household income level) differences existed. A chi-square test conducted on the Canadian group was significant χ^2 (3, N = 222) = 19.00, p = .0002, with horizontal individualists being less likely than expected to be in the lowest (i.e., under $24,999 Canadian) of four household income levels (f = 25, f_e = 33.9, cell χ^2 = 2.35) and much more likely than expected to be in the highest (i.e., over $100,000 Canadian) household income level (f = 27, f_e = 15.3, cell χ^2 = 8.90). Comparably,

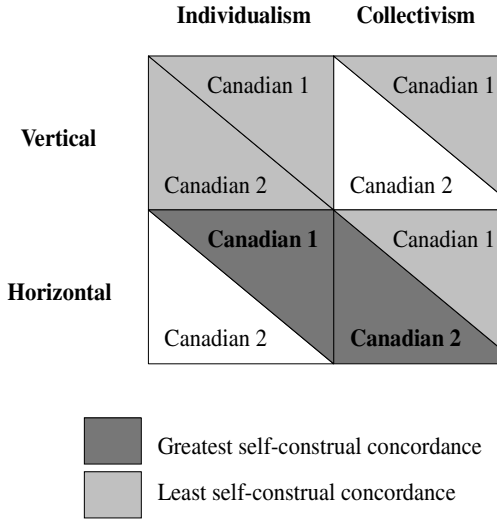

Figure 2. Self-construal concordance, by cluster, for Canadians.

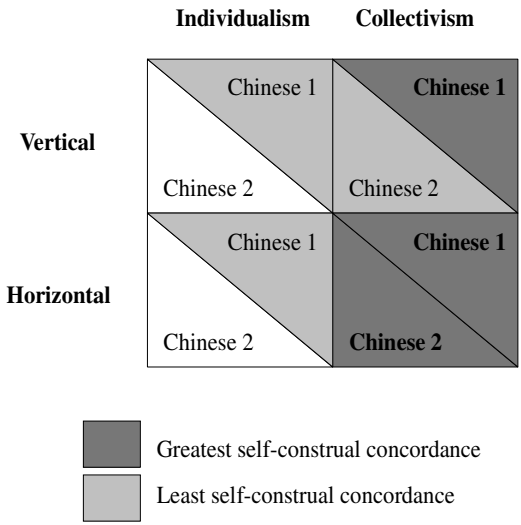

Figure 3. Self-construal concordance, by cluster, for Chinese.

Canadian horizontal collectivists were more likely than expected to be in the lowest household income level ($f = 68$, $f_e = 59.1$, cell $\chi^2 = 1.35$) and much less likely than expected to be in the highest household income level ($f = 15$, $f_e = 26.7$, cell $\chi^2 = 5.11$). This analysis' Cramer V of 0.3 represents a medium to large effect size.

Similarly, a chi-square test conducted on the Chinese group was also significant χ^2 (3, $N = 214$) = 8.65, $p = .0344$, with horizontal collectivists being much more likely than expected to be in the lowest (i.e., under 18,000 yuan, or approximately $3,600 Canadian) of four household income levels ($f = 25$, $f_e = 17.7$, cell $\chi^2 = 3.08$) and much less likely than expected to be in the second lowest (i.e., 18,000 to 36,000 yuan, or approximately $3,600 to $7,200 Canadian) household income level ($f = 5$, $f_e = 10.5$, cell $\chi^2 = 2.87$). This analysis' Cramer V of 0.2 represents a small to medium effect size. No other significant socio-demographic differences between the clusters in each group were found.

Culture, Self-Construal, and Leisure Constraints

A MANOVA conducted on the ten intrapersonal constraints using the four clusters as the independent variable was significant, Wilk's $\Lambda = .48$, F (30, 1245.2) = 11.96, $p < .0001$. This analysis' η^2 of 0.52 is indicative of a large effect size (Weinfurt, 1995). Table 4 reports means, standard errors, and the results of the linear contrasts performed on each intrapersonal constraint by the Canadian group's clusters. Two of the linear contrasts, affective attitude and injunctive norm, were significant but not at the selected cut-off

TABLE 4
Constraint Means, Standard Errors, and Linear Contrast Result, By Cluster for Canadians

	Horizontal Individualist		Horizontal Collectivist		Linear Contrast		
Constraint	*M*	*SE*	*M*	*SE*	*df*	*F*	*d*
Intrapersonal (*Type*)							
Affective Attitude	1.93	0.07	1.70	0.05	1,433	5.76	0.29
Instrumental Attitude	1.70	0.09	1.34	0.07	1,433	10.48**	0.40
Injunctive Norm	1.73	0.12	1.43	0.09	1,433	3.93	0.29
Social Support	1.97	0.10	1.61	0.08	1,433	7.90**	0.37
Self-Efficacy	2.51	0.14	2.56	0.10	1,433	0.06	0.05
Controllability/Primary	2.28	0.13	2.01	0.10	1,433	2.58	0.25
Need/Personal Choice	3.87	0.15	3.33	0.11	1,433	8.58**	0.47
Need/Mutual Choice	2.83	0.14	2.66	0.10	1,433	1.06	0.15
Need/Relatedness	4.81	0.10	4.98	0.08	1,433	1.78	0.18
Role Fulfillment	3.70	0.10	3.93	0.07	1,433	3.56	0.25
Intrapersonal (*Overall*)	3.14	0.05	2.99	0.04	1,439	5.73*	0.22
Interpersonal	3.08	0.07	3.22	0.05	1,439	2.27	0.18
Structural	4.72	0.07	4.76	0.05	1,439	0.16	0.05

Note: Constraints were measured using a six-point scale, with higher mean scores indicating greater constraint on starting a new leisure activity.
* $p < .05$. ** $p < .01$.

point. Three of the linear contrasts were significant at this more rigorous probability level, however: instrumental attitude, social support, and the need for autonomy/personal choice. In all three instances Canadian horizontal individualists reported being significantly more constrained than Canadian horizontal collectivists. Seven intrapersonal constraints had small to medium effect sizes, with social support, instrumental attitude, and need for autonomy/personal choice being the largest ($d = 0.37$, $d = 0.40$, and $d = 0.47$, respectively).

A MANOVA conducted on the overall intrapersonal, and interpersonal and structural, constraints using the four clusters as the independent variable was also significant, Wilk's $\Lambda = .61$, $F\,(9, 1063.7) = 26.72$, $p < .0001$. This analysis' η^2 of 0.39 is indicative of a large effect size. Table 4 reports means, standard errors, and the results of the linear contrasts performed on each constraint by the Canadian group's clusters. Only the overall intrapersonal constraint was significant, with Canadian horizontal individualists feeling significantly more intrapersonally constrained than Canadian horizontal collectivists. The effect size for this finding was in the small to medium range.

As noted above, the MANOVA conducted on the ten intrapersonal constraints using the four clusters as the independent variable was significant.

Table 5 reports means, standard errors, and the results of the linear contrasts performed on each intrapersonal constraint by the Chinese group's clusters. Three of the linear contrasts were significant: self-efficacy, need for autonomy/mutual choice, and role fulfillment. Chinese bi-collectivists reported feeling significantly more constrained than Chinese horizontal collectivists in terms of need for autonomy/mutual choice and role fulfillment, whereas bi-collectivists felt significantly less constrained than horizontal collectivists in terms of self-efficacy. Both self-efficacy's ($d = 0.55$) and need for autonomy/mutual choice's ($d = 0.58$) effect sizes were above the medium effect starting point of $d = 0.50$. In contrast, role fulfillment's effect size ($d = 0.84$) was above the large effect starting point ($d = 0.80$).

As noted earlier, the MANOVA conducted on the overall intrapersonal, interpersonal, and structural constraints with all four clusters was significant. Table 5 reports means, standard errors, and the results of the linear contrasts performed on each constraint by the Chinese group's clusters. Two of the linear contrasts were significant, with Chinese bi-collectivists feeling significantly more intrapersonally and structurally constrained than Chinese horizontal collectivists. The former constraint's effect size was in the small to medium range whereas the latter constraint's effect size was in the medium to large range ($d = 0.44$ and $d = 0.52$, respectively).

TABLE 5
Constraint Means, Standard Errors, and Linear Contrast Results, By Cluster for Chinese

	Bi-Collectivist		Horizontal Collectivist		Linear Contrast		
Constraint	*M*	*SE*	*M*	*SE*	*df*	*F*	*d*
Intrapersonal							
Affective Attitude	1.96	0.05	2.14	0.11	1,433	2.04	0.22
Instrumental Attitude	1.72	0.06	1.78	0.14	1,433	0.17	0.07
Injunctive Norm	2.28	0.08	2.35	0.18	1,433	0.15	0.07
Social Support	2.56	0.07	2.82	0.16	1,433	2.39	0.27
Self-Efficacy	2.90	0.09	3.50	0.21	1,433	6.85*	0.55
Controllability/Primary	2.34	0.09	2.56	0.20	1,433	0.95	0.20
Need/Personal Choice	4.27	0.10	4.00	0.22	1,433	1.18	0.24
Need/Mutual Choice	3.90	0.09	3.26	0.21	1,433	7.91*	0.58
Need/Relatedness	4.72	0.07	4.40	0.16	1,433	3.47	0.33
Role Fulfillment	4.79	0.06	4.02	0.15	1,433	21.76***	0.84
Intrapersonal	3.56	0.03	3.27	0.08	1,439	11.10**	0.44
Interpersonal	3.49	0.05	3.53	0.11	1,439	0.08	0.05
Structural	4.45	0.05	4.03	0.11	1,439	12.23**	0.52

Note: Constraints were measured using a six-point scale, with higher mean scores indicating greater constraint on starting a new leisure activity.
* $p < .01$. ** $p < .001$. *** $p < .0001$.

Finally, to validate the four self-construal patterns we conducted cluster analyses on 170 Canadian and 229 Mainland Chinese university students who had participated in a different study (Walker & Wang, in press). In Canada, these students were largely approached at various university settings (e.g., atriums, food courts) whereas in China students were approached at various university public areas. Both Canadian and Chinese students completed a brief questionnaire consisting of an introductory statement, a series of motivation items, and various socio-demographic questions including Triandis and Gelfand's (1998) self-construal items. Examination of the Pseudo-*F* Statistic results indicated that a two-cluster solution was once again optimal for both Canadian students (Pseudo-$F = 52.65$) and Chinese students (Pseudo-$F = 80.64$). As reported in Table 6, for Canadians, there were more students in the first cluster than the second cluster (75% and 25%, respectively) whereas, for Chinese, there were fewer students in the first cluster than the second cluster (17% and 83%, respectively). More importantly, based on the results of the paired sample t-tests, the structure of the self-construal cluster patterns in our sample and in the validation sample appear comparable. In the validation sample, for example: (1) Canadian students in cluster one were high on horizontal individualism (albeit not significantly more so than on vertical and horizontal individualism) and low on vertical collectivism; (2) Canadian students in cluster two were highest on horizontal collectivism (albeit not significantly more so than on horizontal individualism) and lowest on vertical individualism; (3) Chinese students in cluster one were equally high on horizontal and vertical collectivism and equally low on horizontal and vertical individualism; and (4) Chinese students in cluster two were highest on horizontal collectivism (albeit not significantly more so than on horizontal individualism) and lowest on vertical collectivism (in addition to vertical individualism). When these clusters are compared with those from this study, Canadian students in validation clusters one and two, and Chinese

TABLE 6
Cluster Analysis of Self-Construal, by Validation Groups

	Canadian				Chinese			
	Cluster 1		Cluster 2		Cluster 1		Cluster 2	
Self-Construal	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Horizontal Collectivism	5.61_a	0.82	5.91_a	0.82	5.14_a	0.80	5.86_a	0.75
Vertical Collectivism	5.20_b	1.00	4.76_b	1.11	4.81_a	1.08	5.64_b	0.84
Horizontal Individualism	5.69_a	0.72	5.62_a	0.92	4.26_b	0.96	5.76_{ab}	0.71
Vertical Individualism	5.75_a	0.73	3.62_c	0.90	3.94_b	1.08	5.65_b	0.77
Participants (%)	126 (75%)		43 (25%)		40 (17%)		189 (83%)	

Note: Self-construal was measured using a seven-point scale, with higher mean scores indicating greater concordance with that type of self-construal. Means in the same column that do not share subscripts differ at $p < .05$.

students in validation cluster two, have very similar self-construal patterns as those in this study's clusters. As well, Chinese students in the first validation cluster have an identical self-construal pattern as Chinese students in the first cluster of this study (i.e., bi-collectivism). These results suggest, therefore, that the self-construal patterns are valid—at least for Mainland Chinese and Canadian university students.

Discussion and Conclusion

Culture and Self-Construal

Although examination of Triandis' (1995) framework was not a stated purpose of this study, because self-construal was hypothesized to be an important intervening variable between culture and certain intrapersonal constraints, we briefly discuss some key findings. First, both Chinese and Canadian students rated horizontal collectivism highest, with the difference between the two group's means not being significant. This result was expected based on Triandis' (1995) and Walker and Wang's (2005) findings as well Thomas' (2005, p. 7) statement that people who self-identify as Canadian may do so in part because of their affinity for Canada's "particular democratic institutions" (e.g., the Constitution Act of 1867 refers to "peace, order, and good government;" Canadian Heritage, 2005) and its perceived "collective achievements" (e.g., universally available publicly funded health care). Second, Chinese students rated vertical collectivism significantly higher whereas Canadian students rated horizontal individualism significantly higher, both results being consistent with Triandis' (1995) and Walker and Wang's (2005) work. Third, Chinese students rated vertical individualism significantly higher than Canadian students, which may reflect the increasingly capitalistic, and therefore competitive, nature of Mainland China's economy (cf. Cai, 2005). Fourth, as expected, the cluster analyses suggest that Canadians differentiate more on the horizontal dimension of self-construal whereas Chinese differentiate more on the collective dimension of self-construal. In the former instance, however, the second Canadian cluster clearly indicated that high horizontal collectivism corresponded with low vertical individualism. In contrast, whereas the first Chinese cluster clearly indicated that both forms of collectivism were equally important, the second Chinese cluster indicated that horizontal collectivism was associated with low vertical collectivism. Finally, the only socio-demographic characteristic that differed significantly between the clusters within the two groups was household income level. According to Triandis (1995), "it is likely that the relationship of affluence and individualism is circular, each fostering the other" (p. 178); which would be consistent with our finding that Canadian horizontal individualists had higher household income levels than Canadian horizontal collectivists. On the other hand, in collectivistic cultures such as China, there is likely a positive relationship between affluence and the vertical dimension of self-construal *if* the person has benefited economically

from hierarchy and inequality and a negative relationship if he or she has not.

Culture, Self-Construal, and Leisure Constraints

Although we hypothesized that seven intrapersonal constraints would be significantly different when the Canadian group's clusters were compared, only three were: instrumental attitude, social support, and the need for autonomy/personal choice. As mentioned in the literature review, we expected Canadian horizontal individualists to be more constrained than Canadian horizontal collectivists because the formers' emphasis on personal achievement would influence both their cognitive evaluation of starting a new leisure activity (*H1b*), as well as their perception of the social support significant others would provide them (*H2b*). Similarly, we expected—and found—that the need for autonomy/personal choice was a greater constraint for Canadian horizontal individualists than for the horizontal collectivists (*H3a*). We did not, however, find that the Canadian horizontal collectivists were more constrained by the need for autonomy/mutual choice than the horizontal individualists as we had expected (*H3b*). Potentially, therefore, the need for autonomy/mutual choice may be equally constraining for horizontal individualists and horizontal collectivists, wheras the need for autonomy/personal choice is more constraining for highly individualistic horizontal selves than for less individualistic horizontal selves. Of the other intrapersonal constraints we hypothesized that would differ significantly, need for relatedness did not (*H4*), whereas affective attitude and injunctive norm ((*H1a* and *H2a,* respectively) did—albeit not at the selected cut-off point of $p < .01$. In the former case it seems that the need for relatedness may, as Deci and Ryan (2000) maintained, indeed be innate and therefore it is equally (and extremely highly) constraining regardless of the type of self-construal one has. In the latter case, because the differences were in the expected directions, with Canadian horizontal individualists feeling more affectively and normatively constrained than Canadian horizontal collectivists, it seems worthwhile re-examining these two intrapersonal constraints in a future study before making a final determination.

We also hypothesized that four intrapersonal constraints would be significantly different at the selected probability level when the Chinese group's clusters were compared. Role fulfillment was significant and in the expected direction (*H5b*), with Chinese bi-collectivists, with their greater emphasis on hierarchy because of vertical collectivism, reporting being more constrained than Chinese horizontal collectivists. Similarly, because Chinese bi-collectivists are highly vertical, we expected—and found—that the need for autonomy/mutual choice was a greater constraint for them than for the more horizontal and much less vertical students in the second cluster (*H5c*). We did not, however, find that Chinese bi-collectivists were more constrained by the need for autonomy/personal choice than Chinese horizontal collec-

tivists as we had expected (*H6*). Thus, in a comparable manner as our Canadian group, it appears that: (a) the need for autonomy/personal choice may be equally constraining for collectivists regardless of whether they are horizontal or vertical, whereas (b) the need for autonomy/mutual choice is more constraining for collectivists who are highly vertical than those who are considerably less so. Nor did we discover, as we had hypothesized, that the two Chinese clusters differed on the injunctive norm constraint (*H5a*). Why this result did not occur is unclear, as the bi-collectivists' emphasis on hierarchy would suggest that significant others' approval would be an important constraint to starting a new leisure activity. Similarly, the unexpected but significant finding that Chinese horizontal collectivists were more constrained in terms of self-efficacy is also somewhat puzzling, although upon further investigation we now wonder whether our measure was, although not written and translated as such, interpreted by Chinese students in terms of what Bandura (1997) called collective self-efficacy (i.e., "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainment;" p. 477). If so, this could explain why Chinese bi-collectivists, with their internalization of hierarchy and its realization in higher income, may have felt more efficacious about starting a new leisure activity than our study's much less vertical and affluent Chinese horizontal collectivists.

Although interpersonal constraints did not differ significantly between the clusters in either of the two cultural groups, structural constraints did differ significantly between the Chinese student clusters, with bi-collectivists being more constrained horizontal collectivists. One reason for this finding may be that, in the same way bi-collectivists students are significantly and intensely (based on the large effect size) affected by the intrapersonal constraint of role fulfillment, they may also be affected by the structural constraint of "other commitments" (Raymore et al., 1993).

In summary, this study examined the potential importance of self-construal (Markus & Kitayama, 1991) as an intervening variable, and findings suggest that its inclusion could increase our understanding of how culture affects certain types of intrapersonal constraints and, possibly, structural constraints as well. Moreover, by including self-construal, this study goes beyond the descriptive ethnic/racial/cultural research that is far too common in our field while, concurrently, demonstrating the importance of examining intra-group, as well as inter-group, similarities and differences (Chick, 2006; Li et al., 2007; Stodolska & Yi-Kook, 2005).

As with any research, there are limitations to this study. In this instance they center upon the use of a convenience sample composed of Chinese and Canadian university students. It is worth noting, however, that Visser, Krosnick, and Lavrakas (2000) propose that in studies such as ours there is often an acceptable trade-off between a potential lack of representativeness and an opportunity to test "whether a particular process occurs at all, to explore its mechanisms, and to identify its moderators" (p. 237). We believe Visser et al.'s proposition holds true for the current study as the role of self-

construal on leisure constraints across cultures has not been examined previously, but we also agree with their addendum that future research on this topic should strive for representativeness.

We also recommend that future cross-cultural research examine the effect of self-construal on intrapersonal, interpersonal, and structural constraints when people are currently participating in a leisure activity (vs. starting a new activity). Self-construal could also affect constraint navigation and negotiation, and so this too is an area that seems ripe for future research (Walker, 2007b). Furthermore, the effect of self-construal on leisure constraints should be replicated with members of the same cultural group (e.g., Mainland Chinese, Taiwanese Chinese) as well as with those from different cultural groups. Finally, Triandis' (1995) self-construal scales could benefit from further cross-cultural research, particularly in regard to their reliability.

In closing, we agree with Chick and Dong (2005) that disregarding culture constrains leisure constraints research. Based on Hutchison (2000), however, it seems true that the exclusion of intervening variables in cross-cultural leisure research is equally constraining. This study demonstrates that, by including culture *and* self-construal, both of these research barriers can be overcome. Moreover, from a much larger perspective, this study also demonstrates the need to begin development of a cross-cultural social psychology of leisure.

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