Articles

Culture and Leisure Constraints:
A Comparison of Canadian and Mainland Chinese University Students

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This study extends previous research on leisure constraints by developing a new, *theory-based,* inventory of intrapersonal leisure constraints items using the theory of planned behavior and self-determination theory as guiding frameworks, and then using the inventory to assess the cross-cultural validity of the hierarchical model of leisure constraints (Crawford, Jackson, & Godbey, 1991). These objectives are accomplished by comparing how perceptions of 10 intrapersonal constraints items and perceptions of intrapersonal, interpersonal, and structural constraints affect starting a new leisure activity among university students in Canada and in Mainland China. English- and simplified Chinese-language questionnaires yielded useable data from 227 Canadian and 216 Mainland Chinese participants. Nine of 10 intrapersonal constraints items differed significantly, with Chinese students being more intrapersonally constrained than Canadians in all but one instance. A single combined measure of intrapersonal constraints was compared with similar indices for interpersonal and structural constraints. All three constraints categories differed significantly: Chinese students were more intra- and interpersonally constrained, while Canadian students were more structurally constrained. Despite these cultural differences, support for the hierarchical leisure constraints model was found in the data for both Chinese and Canadian students, indicating the general applicability of this framework across two cultures.

KEYWORDS: *Constraint, culture, leisure, self-determination theory, theory of planned behavior.*

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. First, Crawford and Jackson (2005) 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). As a consequence, what is commonly regarded as being an intrapersonal constraint may exclude factors found in contemporary socio-psychological theories. For example, Ajzen's (1991) theory of planned behavior (TPB) and Deci and Ryan's (2000) self-determination theory (SDT) are well established in social psychology (see, for example, Armitage & Conner's, 2001, meta-analytic review of the TPB and the 2000 special issue on SDT), but little attention has been given to how these two theories could further our understanding of intrapersonal constraints. On the other hand, Mannell and Kleiber (1997, pp. 336-341) have suggested that the TPB's variables of attitudes, subjective norms, and perceived behavioral control could affect the formation of leisure preferences, and that needs—such as, we presume, those found in SDT—may also affect leisure preference formation.

Second, there has been little research on how intrapersonal (as well as interpersonal and structural) 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), while Chick and Dong (2005) argued that, "the disregard of culture as an independent variable in the study of leisure constraints is itself highly constraining" (p. 179). Unfortunately, this research lacuna is not uncommon in leisure studies, as evidenced by Valentine, Allison, and Schneider's (1999) findings and their subsequent appeal for a shift toward a more international perspective. As Valentine et al. stated, many benefits would accrue from this type of research, including the "opportunity to test and validate the generalizability of leisure phenomena and constructs" (p. 242).

Although determining whether different leisure constraints are applicable across cultures is important, ascertaining whether these constructs are similarly structured is equally crucial. Crawford, Jackson, and Godbey (1991) held that the three types of constraints are organized sequentially and hierarchically, from intrapersonal to interpersonal to structural constraints. Raymore, Godbey, Crawford, and von Eye's (1993) empirical research supported this ordering of effects, although other studies have been more equivocal (e.g., Chick & Dong, 2005; Gilbert & Hudson, 2000). Thus, further examination of Crawford et al's. (1991) hierarchical leisure constraints model, both in terms of its general explanatory ability and cross-cultural applicability, seems warranted.

This study extends previous research on leisure constraints by developing a new, theory-based, inventory of intrapersonal leisure constraints items using the theory of planned behavior and self-determination theory as guiding frameworks, and then using the inventory to assess the cross-cultural validity of the hierarchical model of leisure constraints (Crawford, et al., 1991). These objectives are accomplished by comparing how perceptions of 10 intrapersonal constraints and perceptions of intrapersonal, interpersonal, and structural constraints affect starting a new leisure activity among Canadian university students in Canada and Chinese university students in Mainland China.

Literature Review

Intrapersonal Constraints

According to Ajzen's (1991) theory of planned behavior (TPB), an individual's behavior is largely dependent upon his or her intention to perform that behavior which, in turn, is determined by: (a) the person's attitudes toward the behavior, both affective (e.g., is it enjoyable or unenjoyable?) and instrumental (e.g., is it wise or unwise?); (b) the subjective norms he or she believes significant others have concerning the behavior, both injunctive (e.g., do they approve or disapprove?) and descriptive (e.g., do they actually do it or not?); and (c) his or her perception of whether the behavior can be performed (i.e., perceived behavioral control or PBC), both in terms of self-efficacy (e.g., is it easy or difficult?) and controllability (e.g., do I have a little control or a lot?). The TPB's proximal variables have been used to explain people's participation in hunting (Hrubes, Ajzen, & Daigle, 2001), boating, biking, climbing, jogging, and beach activities (Ajzen & Driver, 1991), and the lottery (Walker, Courneya, & Deng, 2006).

Although behavioral intentions and intrapersonal constraints initially appeared to be distinct constructs, both are antecedent to actual behavior. Additionally, Perugini and Bagozzi (2001) contended that behavioral intentions (i.e., "I intend to. . .") are preceded by behavioral desires (i.e., "I want to. . ."), and Crawford and Godbey (1987) discuss leisure preferences as "the *desire* [italics added] to participate" and people not getting the "chance to do what they would like" (p. 121). Thus, behavioral desires and leisure preferences appear to be very similar constructs. Finally, Armitage and Conner's (2001) meta-analysis found that the TPB's proximal variables were better predictors of behavioral desires than behavioral intentions, which suggests that these variables may also help explain the formation (and non-formation) of leisure preferences.

Crawford and Godbey (1987) stated that intrapersonal constraints include individual psychological states (e.g., stress, anxiety, fatigue, depression), "religiosity, kin and non-kin reference group attitudes, prior socialization into specific leisure activities, perceived self-skill, and subjective evaluations of the appropriateness and availability of various leisure activities" (p. 122). Although Crawford and Godbey did not mention how they

developed their list, at least two of the variables they identified are concep-
tually similar to those found in the theory of planned behavior's precursor,
the theory of reasoned action (TRA). Specifically, the concept of "subjective
evaluations" is analogous with Ajzen's (2001, p. 28) definition of an attitude
(i.e., "a summary evaluation of a psychological object"), while "reference
group attitudes" are comparable with Ajzen's (2002, p. 1) description of a
subjective norm. Missing from Crawford and Godbey's list, however, was the
TPB variable of perceived behavioral control—and its absence exemplifies
how contemporary social psychological theories could aid the development
of an intrapersonal constraint inventory.

Arguably, the next major advance in conceptualizing intrapersonal con-
straints occurred with Mannell and Kleiber's (1997) suggestions regarding
Ajzen's (1991) theory of planned behavior and Deci and Ryan's (2000) self-
determination theory. Although self-determination theory has been used in
previous research on leisure motivations (e.g., Weissinger & Bandalos, 1995),
Mannell and Kleiber were the first to recognize SDT's potential value in
terms of intrapersonal constraints. Self-determination theory holds that there
are innate human needs (p. 229), including competence, autonomy (i.e.,
"the desire to self-organize experience and behavior and to have activity be
concordant with one's integrated sense of self"), and relatedness (i.e., "the
desire to feel connected to others—to love and care, and be loved and cared
for" Deci & Ryan, p. 231). Although Mannell and Kleiber did not explicitly
state how needs may act as intrapersonal constraints, we maintain that if a
person believes that participating in a leisure activity will not successfully
fulfill a fundamental need then he or she will be less likely to form a pref-
erence for that activity. This process is similar to what Gleicher, Boninger,
Strathman, Armor, Hetts, and Ahn (1995) termed *prefactuals,* whereby a per-
son imagines an anticipated negative outcome and its alternatives which, in
turn, influence his or her intentions and behavior.

Culture and Intrapersonal Leisure Constraints

Deci and Ryan (2000) also believed that while the need for competence,
autonomy, and relatedness are innate, the importance of each varies across
individuals. Similarly, research by Sheldon, Elliot, Kim, and Kasser (2001)
indicated that the importance of these three needs varies across *cultures.*
Sheldon et al. had undergraduate students in the U.S. and South Korea rate
the importance of 10 fundamental psychological needs, including self-
esteem, pleasure-stimulation, and, from SDT, autonomy, competence, and
relatedness. They found that American students rated self-esteem the high-
est, followed by relatedness, autonomy, and competence (with no significant
differences among these last three needs), while South Koreans students
rated relatedness the highest, followed by self-esteem, and then by autonomy,
competence, and pleasure-stimulation (with no significant differences
among these last three needs).

It is worth noting that not only can the importance of self-determination
theory's needs vary across cultures, but the structure of these needs can vary

as well. For example, Sheldon et al. (2001) operationalized autonomy using three items (e.g., "free to do things my own way"), all of which are consistent with what Walker, Deng, and Dieser (2005) termed autonomy/personal choice. As Walker et al. described, although this view of autonomy is consistent with Deci and Ryan's (2000) description, it can be contrasted with autonomy/mutual choice, as exemplified in a study by Iyengar and Lepper (1999). Iyengar and Lepper found that while Anglo American children were intrinsically motivated the most when they personally chose aspects of a puzzle experiment, Asian American children were intrinsically motivated the most when they were told that an in-group member (i.e., their mothers) had chosen for them. Thus, based on the importance that Asians and North Americans ascribe to different needs, we hypothesize that Chinese university students will be more constrained by how well they perceive starting a new leisure activity will satisfy their need for relatedness and autonomy/mutual choice. In contrast, we hypothesize that Canadian students will be more constrained by how well they perceive starting a new leisure activity will satisfy their need for autonomy/personal choice.

Additionally, based on comments made by Iyengar and Lepper (2002), Walker et al. (2005) posited that role fulfillment may also vary in importance cross-culturally. In Chinese culture, for example, *bu fu hou wang* (i.e., to live up to others' expectations) "is aspired to and cherished" (Gao, 1998, p. 165), and conforming to role expectations is seen as a sign of strength and maturity (Wong & Ahuvia, 1998). Thus, we hypothesize that Chinese university students will be more constrained by how well they perceive starting a new activity will allow them to successfully fulfill three important roles (i.e., as a friend, student, and son/daughter) compared with Canadian students.

Research suggests that the theory of planned behavior variables' effects may also differ across cultures and, therefore, so too could their influence as intrapersonal constraints. For example, because Chinese culture can be distinguished from Western culture in terms of personal and societal values (Naisbitt, 1995; as cited in Ap, 2002), it is not surprising to find that leisure attitudes and norms also vary considerably between Chinese and Euro-North American societies (Wang & Stringer, 2000). Traditionally, leisure pursuits in China were largely confined to members of the upper class, such as feudal officials and literati (Ma, 1998). Even in recent years, "the vast majority of the Chinese agricultural population hardly participate in any recreation and/or leisure activities at all" (Xiao, 1997, p. 362). In fact, leisure conveys a derogatory connotation from the perspective of traditional Chinese culture, and even in the 1970s, leisure (*xian xia*) was a negative word and a symbol of pursuing the lifestyle of capitalist societies. Wang and Stringer (2000) and others (Ap, 2002; Deng, Walker, & Swinnerton, 2005; Xiao, 1997) also contended that Chinese people are less likely to view leisure as an important component of their lives compared with Euro-North Americans because Chinese, in general, tended to have a stronger work ethic. Secondary data analysis from the World Values Survey (2005) provides some support for this proposition, as while near equal percentages of Chinese and Canadians reported that work was very important (61% and 59%, respectively),

only 13% of Chinese reported that leisure time was very important versus 42% of Canadians.

Chinese people's ambivalent attitudes toward leisure can be contrasted with their more positive attitudes toward higher education, which is the prerequisite to achievement, a value that is highly esteemed by Chinese (Wen, 1989). According to Confucianism there are three ideal achievements: (a) establishing virtue (*li de*), which means "to create and bequeath to posterity a model of behavior" or "to leave benevolence and grace for eternity"; (b) establishing deeds (*li gong*), which means to render meritorious service; and (c) establishing words (*li yan*), which means to attain scholarship (Deng et al., 2005, p. 243). Although these three objectives reflect the abstract thoughts of the upper classes, for most Chinese their goals are to attain wealth, reputation, longevity, and morality. For ordinary Chinese, learning is the only way to climb from a lower to a higher rung on the social ladder and, therefore, it is highly valued and encouraged. Additionally, the achievement motivation for most Chinese is also family- and clan-oriented, and has a strong collective and social nature (Yang, cited in Bond, 1991, p. 17). We hypothesize therefore that, compared with Canadian students, Chinese university students': (a) affective and instrumental attitudes toward starting a new leisure activity will be more constraining; (b) injunctive norms regarding starting a new leisure activity will be more constraining; and (c) perceived social support for starting a new leisure activity will be more constraining.

Research also suggests that the TPB's two perceived behavioral control dimensions—self-efficacy and controllability—can vary across cultures. Klassen (2004), for example, conducted a meta-analytic review of cross-cultural self-efficacy studies, which led him to state, "almost all of the 20 studies reviewed found efficacy beliefs to be lower for non-Western cultural groups" (p. 205). In one of the studies he examined (Salili, Chiu, & Lai, 2001), European Canadian high school students had significantly higher academic self-efficacy scores compared with Hong Kong Chinese students. Controllability too may differ across cultures. For example, Weisz, Rothbaum, and Blackburn (1984) proposed that there are two distinct types of controllability: (a) primary control, where "individuals enhance their rewards by influencing existing realities (e.g., other people, circumstances, symptoms, or behavior problems)" (p. 955); and (b) secondary control, where "individuals enhance their rewards by accommodating to existing realities and maximizing satisfaction or goodness of fit with things as they are" (p. 955). Empirical research (Chang, Chua, & Toh, 1997; Sastry & Ross, 1998) supports Weisz et al.'s contention that primary control is more common in Western cultures, while secondary control is more common in Asian cultures. In the case of the Chinese, this outcome is likely because "underlying secondary control is a belief that the self can be changed. This belief is consistent with Asian values of self-reflection and self-cultivation" (Chang et al., p. 114). Thus, we hypothesize that, compared with Canadian university students, Chinese students will report feeling less self-efficacious and in (primary) control in regard to starting a new leisure activity. In summary, we hypothesize that Chi-

nese and Canadian university students will differ across a number of SDT- and TPB-based intrapersonal constraints.

Culture, Interpersonal Constraints, and Structural Constraints

Interpersonal and structural constraints can also vary across cultures. As Chick and Dong (2005) stated, there are cultural constraints on free time— and, we would add, this can affect a person who has already developed a preference for recreating, either because he or she lacks time (i.e., a structural constraint), or because other people lack time to recreate with him or her (i.e., an interpersonal constraint), or both. A meta-analytic review of time use around the world (Larson & Verma, 1999) found that, on average across a 7-day week, North American adolescents had 6.5 to 8.0 hours of free time per day while East Asian adolescents had only 4.0 to 5.5 hours of free time per day. Moreover, a study of U.S. and Hong Kong university students (Wheeler, Reis, & Bond, 1989) reported that the American students had significantly more social interactions each day than did Chinese students. In the same way, free time is often associated with economic development, so too are other interpersonal and structural constraints. Xiao (2003), for example, stated that: "for a developing country such as China, an increase in per capita GNP and personal incomes is still a prerequisite before a broad range of both simple and sophisticated tourism and leisure pursuits can be available to all" (p. 274). Xiao, however, recognized that discretionary income is only one constraint, as "management, planning, and marketing issues, such as traffic congestion, visitor congestion, inadequate upkeep of facilities, and poor visitor behavior are leading to the degradation of [China's] destinations and infrastructures" (p. 274). Additionally, and albeit with Chinese immigrants to Australia, Tsai and Coleman (1999) found that, after lack of resources, interpersonal constraints were most important. Thus, it appears that culture also affects individual's perceptions of interpersonal and structural constraints; and, in the case of our study, it would seem likely that Chinese university students would report higher levels of interpersonal and structural constraints than Canadian students. Having stated this, it is also necessary to take into account how these two types of constraints, in conjunction with interpersonal constraints, may be hierarchically structured.

Hierarchical Leisure Constraints Model

As mentioned earlier, Crawford et al. (1991) contended that the three types of constraints are arranged hierarchically, whereby individuals who are most affected by intrapersonal constraints would be unlikely to enunciate the desire to participate in a given leisure activity. As a result, they would not reach the stage of encountering higher order constraints, which still might (or might not, depending on the nature and strength of these constraints) prevent them from doing what they would like in the way of leisure. Conversely, individuals less intensely or not at all affected by intrapersonal

constraints would be more likely to identify such higher order constraints as behavioral deterrents. (p. 314)

Raymore et al. (1993) tested the hierarchical constraints model using Canadian high school students. Students were asked a series of questions about the likelihood of their starting a new leisure activity when faced with a variety of intrapersonal, interpersonal, and structural constraints. The researchers' results were highly supportive of the hierarchical model, with the only exception being students who were low on all three types of constraints being more numerous than expected—a finding which may have been due to structural constraints having a "physical referent," versus intrapersonal constraints which are "much more nebulous, making them more difficult to identify" (p. 112).

Gilbert and Hudson (2000) also conducted a test of the hierarchical constraints model, in this case with English skiers and non-skiers. Respondents rated 30 intrapersonal, interpersonal, and structural constraints on skiing participation and then the same statistical procedure Raymore et al. (1993) used was performed on the total sample. According to Gilbert and Hudson, their study findings suggested that, at least in the case of skiing, "individuals need to overcome intrapersonal constraints in order to embark upon a leisure preference prior to confronting structural constraints," but interpersonal constraints either do not intervene between the other two types of constraint or they do not exist (p. 919). The researchers subsequently put forth a revised hierarchical constraints model, albeit one pertaining solely to skiing.

Chick and Dong (2005) have also proposed a revised hierarchical constraints model, based on interviews they conducted with six Chinese and six Japanese couples. Study results supported the existence of intrapersonal, interpersonal, and structural constraints for Chinese and Japanese people, but also suggested the possibility of a fourth type of constraint: cultural constraint. Two interview fragments illustrate this newly-identified type of constraint: in one, a Chinese man stated, "Chinese parents cannot accept that their children don't visit them and traditional culture also doesn't allow me to do my leisure activities instead of visiting my parents"; in the other, a Japanese woman stated, "I have to visit my husband's parents during the New Year holiday because my culture doesn't allow me to do leisure activities instead" (p. 342).

Chick and Dong (2005) interpreted these comments in terms of prescriptive and proscriptive norms, an interpretation which seems analogous to our earlier discussion of role fulfillment. We differ, however, in that while Chick and Dong believed their results revealed the existence of a fourth type of constraint, we would argue they can just as easily be interpreted as a previously overlooked, culturally influenced, component of *intrapersonal* constraints. If this alternative interpretation is acceptable, then we do not need to adopt Chick and Dong's revised model, in which structural and cultural constraints precede intrapersonal and interpersonal constraints. Thus, for the purposes of this study, we follow the original sequential model proposed by Crawford et al. (1991).

Finally, it is important to acknowledge that qualitative research (usually conducted from a feminist perspective) often suggests that the experience of leisure constraints is holistic and dynamic rather than hierarchical (e.g., Henderson & Bialeschki, 1993; Samdahl & Jekubovich, 1997). Shaw and Henderson (2005) believed that this difference is due to feminist research having generally used a socio-cultural approach, while most leisure constraints research has tended to adopt a socio-psychological approach. However, because the present study emphasizes the latter perspective, we are unable to test the value of the alternative socio-cultural perspective, but feel obliged to mention that the strategy we have followed is not universally accepted.

Method

Canadian and Mainland Chinese university students completed a brief questionnaire which focused on starting or not starting a new leisure activity. In this respect we follow Raymore et al.'s (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. Seventeen intrapersonal constraint items were developed using Ajzen's (1991) TPB variables, two of Deci and Ryan's (2000) SDT needs (i.e., autonomy and relatedness), Iyengar and Lepper's (1999) distinction between the need for autonomy/personal choice and the need for autonomy/mutual choice, Courneya, Plotnikoff, Hotz, and Birkett (2000) distinction between injunctive norm and social support, and three social roles (i.e., son/daughter, friend, student) study participants could potentially want to fulfill (Chuang, 1998). Theory of planned behavior constructs, such as affective and instrumental attitudes, were not combined as recent research (Blanchard, Rhodes, Nehl, Fisher, Sparling, & Courneya, 2003; Walker et al., 2006) has found that the importance of the TPB variables can vary across cultures. Seven interpersonal and eight structural constraint items, based on Raymore et al. (1993), were also included. Students indicated the extent to which they disagreed (strongly = 1, moderately = 2, slightly = 3) or agreed (slightly = 4, moderately = 5, strongly = 6) with the 32 constraint items. Sociodemographic information (e.g., sex, age, relationship status, self-identified cultural group), 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, comprehensive, Canadian university (n = 315) and a large, comprehensive, Mainland Chinese university (n = 251), both of which are located in major metropolitan areas, 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. Participants' socio-demographic characteristics, by cultural group (i.e., Chinese and Canadian), were calculated.
2. Standardized Cronbach coefficient alphas were calculated, by cultural group, for the multi-item intrapersonal constraint scales, and equality of the reliability coefficients was tested (as per van de Vijver & Leung, 1997, p. 60).
3. After listwise deletion, confirmatory factor analyses (LISREL 8.72) examined the intrapersonal constraint factor structures, by cultural group. Estimates of the parameters were derived using the maximum likelihood estimation method. Factors with single indicators had their structural coefficients fixed at 1.0 and their measurement error variances fixed at the product of their variance and an assigned error variance of .2 (Hayduk, 1987). Similarly, factors with multiple indicators had their "best" indicators' structural coefficients fixed at 1.0 and their measurement error variances fixed at the product of their variance and an assigned error variance of .2. The assigned error variance percentage was selected based on variable reliability in the social sciences typically being around .8 (Tabachnick & Fidell, 2006). Because the chi-square goodness of fit test is sample size sensitive (Tabachnick & Fidell), model fit was analyzed using a variety of indices (i.e., the Liklihood-Ratio chi-square statistic or χ^2/df, RMSEA, NFI, CFI, GFI, AGFI), and chi-square tests were conducted to ensure model modifications resulted in significantly improved fits.
4. A multivariate analysis of variance (MANOVA) was conducted on the 10 intrapersonal constraints using cultural group as the independent variable. Because the MANOVA's result was significant, a series of analysis of variance (ANOVA) were also performed.
5. Overall intrapersonal constraint means were calculated for each group, and a MANOVA was conducted on this, the interpersonal, and the structural constraints, using cultural group as the independent variable. Because the MANOVA's result was significant, ANOVAs were performed on overall intrapersonal, interpersonal, and structural constraints, by cultural group.
6. Following Raymore et al.'s (1993) procedure, hierarchical constraint classes were developed and compared, by cultural group. Specifically, median splits were first calculated on each of three types of constraints, resulting in eight constraint level categories (e.g., low intra-

personal, low interpersonal, low structural; low intrapersonal, high interpersonal, low structural). Four classes consistent with the hierarchical model's hypothesized structure were then developed: (a) Class 1 (i.e., high intrapersonal constraint scores, regardless of scores on the other two types of constraints); (b) Class 2 (i.e., low intrapersonal constraint scores and high intrapersonal constraint scores, regardless of scores on structural constraints); (c) Class 3 (i.e., low intrapersonal and interpersonal constraint scores, but high structural constraint scores); and (d) Class 4 (i.e., low scores on all three types of constraints). Based on the principle that fewer participants should advance as their position in the hierarchy increases, six inter-class comparisons were then made (i.e., Class 1 vs. Class 2, Class 3, Class 4; Class 2 vs. Class 3 and Class 4; and Class 3 vs. Class 4), and support for a hierarchy was determined based on the frequency of participants in the first comparison class being greater than the frequency in the second comparison class. Finally, once again following Raymore et al.'s example, binomial tests were carried out to determine the probability of Canadian and Chinese study participants *not* acting in accordance with the hierarchical leisure constraints model.

Results

Socio-Demographic Information

Study participants in Canada whose ethnicity was other than solely Canadian or whose preferred spoken language was other than English, were excluded, as were participants in China whose ethnicity 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 sample (72.1% and 86.1%, respectively). These groups are sufficiently large for the planned statistical analyses (Kelloway, 1998; Lauter, 1978), yet sufficiently homogeneous to forestall concerns about being overly broad and all-inclusive; a critique often, and accurately, leveled at our field (Stodolska & Yi-Kook, 2005). Finally, the Canadian group had near equal numbers of males ($n = 114$) and females ($n = 112$; one individual unknown), while 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%).

Leisure Constraint Scales

The 10 intrapersonal constraint items, and standardized Cronbach coefficient alphas for the multi-item scales, are reported in Table 1. Five items were reverse coded so that higher mean scores always meant higher level of constraints. Examination of the alpha for the TPB instrumental attitude scale indicated that it would be improved if one item was deleted. Alphas for the

TABLE 1
*Intrapersonal Constraints, Items, Standardized Cronbach Coefficient Alphas, and
F-Ratios, by Cultural Group*

Intrapersonal Constraint (Comments)	Cronbach Alpha		F-ratio
	Canadian	Chinese	
Affective Attitude	.65	.61	0.90
It would be enjoyable for me to start a new leisure activity (R)			
It would be boring for me to start a new leisure activity			
It would be pleasant for me to start a new leisure activity (R)			
Instrumental Attitude	.74	.68	0.81
It would be bad for me to start a new leisure activity			
It would be foolish for me to start a new leisure activity			
It would be useful for me to start a new leisure activity (D)			
Injunctive Norm	—	—	
The people who are important to me would not approve of me starting a new leisure activity			
Social Support	—	—	
The people who are important to me would support me starting a new leisure activity (R)			
Self-Efficacy	—	—	
It would be easy for me to start a new leisure activity (R)			
Controllability/Primary	—	—	
I have little control over starting a new leisure activity			
Need for Autonomy/Personal Choice	—	—	
I only want to start a new leisure activity if I can choose it all by myself			
Need for Autonomy/Mutual Choice	—	—	
I only want to start a new leisure activity if the people who are important to me help me choose it			
Need for Relatedness	.69	.73	0.87
I am more likely to start a new leisure activity if I want to interact with the people doing it			
I am more likely to start a new leisure activity if I want to become closer with the people doing it			
Role Fulfillment	.66	.58	1.00
I am more likely to start a new leisure activity if it would help me in my role as a son/daughter			
I am more likely to start a new leisure activity if it would help me in my role as a student			
I am more likely to start a new leisure activity if it would help me in my role as a friend			

Note. R = reverse coded. D = deleted. None of the reliability coefficients differed at $p < .05$.

four multi-item scales were all at or near acceptable levels (Nunnally, 1967), especially when the number of constructs being measured was taken into account (Cronbach & Gleser, 1965). Equality of the multi-item scales' reliability coefficients was tested using van de Vijver and Leung's (1997) recommended procedure. None of the reliability coefficients differed significantly ($p < .05$), suggesting that all four multi-item scales demonstrated construct equivalence (van de Vijver & Leung).

The 10 intrapersonal constraints and the 16 items forming these 10 scales underwent confirmatory factor analysis, by cultural group. Although the hypothesized model involving Canadian university students was significant, the fit indices were generally acceptable (Table 2). For example, Wheaton, Muthen, Alwin, and Summers (1977) proposed that a Likelihood ratio of less than five is acceptable while Carmines and McIver (1981) held that a ratio of two or three is more reasonable. For fit indices such as the CFI, GFI, and NFI, Klem (2000) contended that a rough rule of thumb is > .9 indicates model acceptability, although based on the results of their Monte Carlo analyses, Hu and Bentler (1999) recommendeded a CFI close to .95. Additionally, Browne and Cudeck (1993) proposed that RMSEA's > .1 are indicative of poor-fitting models. Examination of the CFA's modification indices suggested, however, that model fit would improve if: (1) error covariances between two of the affective attitude indicator error terms (i.e., "It would be enjoyable to start a new leisure activity" [reverse coded] and "It would be boring for me to start a new leisure activity") and among the three role fulfillment indicator error terms were included; and (2) the path from various indicators to certain factors was freed (e.g., from "It would be enjoyable for me to start a new leisure activity" to social support). The aforementioned error covariance modifications were made; however, the path modifications were not, following Kelloway's (1998) contention that the latter change should be avoided unless a theoretical justification exists. A chi-square difference test indicated a significant ($p < .001$) improvement in fit between the hypothesized model and the modified model. The modified model's five free structural coefficients and four error term covariances were all significant ($p < .05$), with the latter being negative in each case. Four of the 45 factor covariances were greater than .400: instrumental attitude and injunctive norm (.435), and social support and instrumental attitude (.405), injunctive norm (.467), and primary control (.502).

The hypothesized model involving Chinese university students was also significant, but in this case the fit indices were marginal (Table 2). Examination of the modification indices suggested that, as with the Canadian students, model fit would improve if: (1) error covariances between the same two affective attitude indicator error terms and among all three role fulfillment indicator error terms were included; and (2) the path from various indicators to certain factors was freed (e.g., from "I am more likely to start a new leisure activity if it would help me in my role as a friend" to need for belonging). Once again, the error covariance modifications were made but the path modifications were not. A chi-square difference test indicated a

TABLE 2
Fit Indices for Nested Sequence of Confirmatory Factor Analysis Models of Intrapersonal Constraints, By Cultural Group

Cultural Group & Model	χ^2	χ^2/df	RMSEA	NFI	CFI	GFI	χ^2diff	ΔRMSEA	ΔNFI	ΔCFI	ΔGFI
Canadian											
1. Hypothesized Model	202.51*	2.93	.09	.87	.91	.91					
2. Modified Model	125.99*	1.94	.06	.91	.95	.94					
Difference between											
Model 2 & Model 1							76.52*	.03	.04	.04	.03
Chinese											
1. Hypothesized Model	328.14*	4.76	.13	.74	.77	.84					
2. Modified Model	171.15*	2.63	.09	.87	.91	.91					
Difference between											
Model 2 & Model 1							156.99*	.03	.05	.14	.07

Note. RMSEA = root mean square of approximation; NFI = normed fit index; CFI = comparative fit index; GFI = goodness-of-fit index. $p < .001$

significant ($p < .001$) improvement in fit between the hypothesized model and the modified model, and this enhancement was also noticeable when the model indices—particularly the CFI and GFI—were inspected. As with the Canadian students' modified model, the five free structural coefficients and four error term covariances were all significant ($p < .05$), with the latter all being negative. Three of the 45 factor covariances were greater than .400: instrumental attitudes and self-efficacy (.410), need for belonging and role fulfillment (.424), and social support and primary control ($-.411$).

Overall, the results of the confirmatory factor analyses support the intrapersonal scale. In terms of overall model fit, both cultural groups' models improved significantly and exhibited reasonable fit after four error covariances were added. This suggests that different, but closely related, concepts were being measured (Hayduk, 1987). This seems a reasonable proposition in terms of the affective attitude indicators of boredom and unenjoyment, as their antitheses (i.e., interest and enjoyment) are also closely associated but distinct (Silvia, 2006). Similarly, although all three role fulfillment indicators measured students' desire to satisfy certain normative requirements it is apparent that these norms can vary across roles. Chuang (1998), for example, found that for Chinese in Taiwan, child/parent and friend/friend roles were very similar in terms of closeness but vastly different in terms of dominance. In terms of validity, the CFA's generally supported the hypothesized relationships between the intrapersonal constraint factors and their indicators; suggesting that there was satisfactory convergent validity. The CFA's also largely supported the hypothesized relationships among the intrapersonal constraint factors in that very few of either cultural group's factor covariances exceeded .4 (cf. John & Benet-Martinez, 2000, who hold that .2 is indicative of relative independence while .8 is indicative of substantial overlap). This result indicates that the intrapersonal constraint factors do exhibit satisfactory discriminant validity.

Culture and Leisure Constraints

A MANOVA conducted on the 10 intrapersonal constraints using group (i.e., Canadian and Chinese) as the independent variable was significant, Wilk's $\Lambda = .54$, $F(10, 426) = 35.62$, $p < .0001$. According to Weinfurt (1995), this analysis' η^2 of 0.46 is indicative of a large effect size (i.e., $\eta^2 \geq 0.25$). Table 3 reports means, standard errors, and the results of the ANOVAs performed on each intrapersonal constraint by group. All of the ANOVAs were significant at $p < .01$, except the theory of planned behavior's primary control variable (which was, however, significant at $p < .05$). Of the nine remaining intrapersonal constraints, eight were more constraining for Chinese university students than for Canadian students. Two of these constraints— need for autonomy/personal choice and injunctive norm—had medium to large effect sizes (i.e., $R^2 = .06$ to .13) and three—need for autonomy/ mutual choice, role fulfillment, and social support—had large effects sizes (i.e., $R^2 = .14$ or greater; Cohen, 1988, as cited in Aron & Aron, 1999). Only

TABLE 3
Constraint Means, Standard Errors, and Analysis of Variance Results By,
Cultural Group

Constraint (Comments)	Canadian		Chinese		ANOVA		
	M	SE	M	SE	df	F	R²
Intrapersonal (Type)							
Affective Attitude	1.78	0.04	1.99	0.05	1,435	10.87*	.03
Instrumental Attitude	1.46	0.05	1.73	0.05	1,435	11.80**	.03
Injunctive Norm	1.54	0.07	2.29	0.07	1,435	53.01***	.11
Social Support	1.74	0.06	2.60	0.06	1,435	94.12***	.18
Self-Efficacy	2.54	0.08	2.99	0.08	1,435	14.30**	.03
Controllability / Primary	2.11	0.08	2.38	0.08	1,435	5.57	.01
Need / Personal Choice	3.52	0.09	4.22	0.09	1,435	30.83***	.07
Need / Mutual Choice	2.72	0.08	3.80	0.08	1,435	86.31***	.17
Need / Relatedness	4.92	0.06	4.67	0.06	1,435	8.34*	.02
Role Fulfillment	3.85	0.06	4.67	0.06	1,435	90.56***	.17
Intrapersonal (Overall)	2.78	0.03	3.28	0.03	1,441	148.76***	.25
Interpersonal	3.17	0.04	3.50	0.04	1,441	26.94***	.06
Structural	4.74	0.04	4.38	0.04	1,441	35.03***	.07

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

self-determination theory's need for relatedness variable was more constraining for Canadian students, and its effect size was small (i.e., $R^2 = .02$ to .05).

A MANOVA conducted on the overall intrapersonal, and interpersonal and structural, constraints using group as the independent variable was also significant, Wilk's $\Lambda = .64$, F (3, 439) = 82.81, $p < .0001$ (Table 3). This analysis' η^2 of 0.36 represents a large effect size (Weinfurt, 1995). Table 3 also reports means, standard errors, and the results of the ANOVAs performed on each constraint by group. All of the ANOVAs were significant at $p < .0001$, with Chinese university students being significantly more intrapersonally (overall) and interpersonally constrained than Canadian students ($R^2 = .25$ and $R^2 = .06$, respectively). On the other hand, Canadian university students were significantly more structurally constrained than Chinese students ($R^2 = .07$).

Empirical support for the use of the TPB and SDT's variables is evident in the discovery that the MANOVA conducted on the 10 intrapersonal constraints by group was not only highly significant but its effect size was also substantially above Weinfurt's (1995) large cut-off point. Moreover, nine of the 10 intrapersonal constraints either part of, or associated with, these two theories were found to differ significantly between Chinese and Canadian

samples, with two constraints (i.e., injunctive norm, need for autonomy/ personal choice, injunctive norm) having medium to large effect sizes and three constraints (i.e., social support, role fulfillment, need for autonomy/ mutual choice) having large effects sizes (Cohen, 1988, as cited in Aron & Aron, 1999).

These findings also suggest that intrapersonal constraints vary greatly between Chinese and Canadian university students, with the former being much more constrained than the latter. Moreover, seven of the nine significant intrapersonal constraints were consistent with our stated hypotheses, the two exceptions being SDT's need for autonomy/personal choice, which we expected would be *more* constraining for Canadian university students than Chinese students, and SDT's need for relatedness, which we expected would be *less* constraining for Canadian university students than Chinese students. Upon further reflection we believe these results may be domain-specific, since Chinese often engage in leisure by themselves (Freysinger & Chen, 1993; Wang & Stringer, 2000) their need for autonomy/personal choice becomes a more important constraint while their need for relatedness becomes a less important constraint. In this way they are able to balance their desire to successfully fulfill their need for relatedness and need for autonomy/mutual choice in non-leisure domains (e.g., at school, with family). Tsai's (2005) work supports this proposition, as she found that, in contrast with Australian university students, Chinese students were less motivated to engage in active recreation for social reasons. Tsai holds that one explanation for this finding may be that Hong Kong has "an abundance of *convenient* social entertainment that provides excellent social interaction opportunities," and further that "much less effort is required to meet social needs through this entertainment than by participating in physical activities that have not been highly valued" (p. 398).

Chinese university students also reported feeling significantly more interpersonally constrained compared with Canadian students. This finding is likely due to Chinese students perceiving that the significant others they would like to start a new leisure activity with are faced with a multitude of barriers (e.g., lack of time, money, facilities, transportation, etc.), which are not encountered to the same degree by their Canadian counterparts.

Hierarchical Leisure Constraint Model

In order to determine if a hierarchical structure existed, Raymore et al.'s (1993) procedure was followed, whereby median splits were calculated for intrapersonal, interpersonal, and structural constraints by group and four classes were subsequently developed. Class 1 consisted of university students high in intrapersonal constraints regardless of their scores in interpersonal and structural constraints (Canadian, $n = 106$; Chinese, $n = 98$). Class 2 consisted of students low in intrapersonal constraints and high in interpersonal constraints regardless of their scores in structural constraints (Canadian, $n = 53$; Chinese, $n = 52$). Class 3 consisted of students who were low

in intrapersonal and interpersonal constraints but who were high in structural constraints (Canadian, $n = 18$; Chinese, $n = 21$). Class 4 consisted of students who were low on all three types of constraints (Canadian, $n = 35$; Chinese, $n = 28$). "For a hierarchy to exist, the number of people in the first comparison class should be greater than the number in the second comparison class in each of the six comparisons" (Raymore et al., p. 110), and this result was found to hold true for Canadian and Chinese university students in study in all but the last instance.

In addition, binomial tests were used to determine the probability that Chinese and Canadian university students were *not* acting in congruence with the hierarchical leisure constraint model. Using the same statistical formula Raymore et al. (1993) employed, and making the same assumptions (e.g., equal probability of accordance and non-accordance), test results for both cultural groups resulted in a probability of .109. Because these results are not significant (i.e., $p > .05$), the hierarchical structure of Crawford et al.'s (1991) constraints model was supported for both Chinese and Canadian students.

Discussion and Conclusion

As noted at the beginning of this article, this study attempted to address two major gaps in leisure constraints research. First, little research has been conducted on intrapersonal and interpersonal constraints compared with structural constraints. Second, there has also been a scarcity of research on how intrapersonal (as well as interpersonal and structural) constraints may be similar or different across cultures. Thus, the study extended previous research on leisure constraints by developing a new, theory-based, inventory of intrapersonal leisure constraints items using the theory of planned behavior and self-determination theory as guiding frameworks, and then using the inventory to assess the cross-cultural similarities and differences in the experience of leisure constraints. These objectives were accomplished by comparing how perceptions of 10 intrapersonal constraints items and perceptions of intrapersonal, interpersonal, and structural constraints affect starting a new leisure activity among Canadian and Mainland Chinese university students.

In this "Discussion and Conclusions" section we briefly: (1) summarize the empirical findings of the study; (2) discuss the contributions of these findings and their theoretical and conceptual underpinnings to leisure constraints research—and, more generally, to leisure studies; (3) identify study limitations and suggest some desirable directions to build on the study; and (4) describe the practical implications of this study.

Summary

As far as the empirical results of the study are concerned, they can be distilled into three main findings. First, all but one of the 10 intrapersonal constraints differed between the two sub-samples, with Chinese being more

intrapersonally constrained in every instance but one (i.e., the need for belonging—an unexpected finding). Many of these constraints (e.g., social support, role fulfillment) had very large effect sizes. Second, although the Chinese respondents were more interpersonally constrained than the Canadians, Canadians were more structurally constrained than Chinese. Third, based on the effect sizes, it can be concluded that culture has a large effect on intrapersonal constraints, but a much smaller effect on both interpersonal and structural constraints.

Contributions

By itself, the finding of differences between Chinese and Canadian students would be a significant contribution in that it empirically supports the rarely-tested proposition that leisure behavior (exemplified in this study by the experience of constraints) varies cross-culturally. Thus, culture has considerable explanatory power and should—in quantitative research at least—be included as an independent and/or control variable.

More important than these "numerical" findings is our assessment that the theory-based inventory of intrapersonal leisure constraints is valid and reliable, suggesting that it could be adopted as a standardized scale in future research. Whereas numerous scales to measure structural constraints have been developed, a theory-based, empirically-verified scale of intrapersonal constraints has been lacking. Furthermore, analysis of the entire set of constraints data supported the sequence of experiencing intrapersonal, interpersonal, and structural constraints as proposed in the original hierarchical model (Crawford, et al., 1991) and verified empirically by Raymore et al. (1993).

Perhaps the most significant aspect of the findings, however, and one that goes well beyond the immediate result of Chinese-Canadian comparisons scores on the constraints items, is the fact that the intrapersonal constraints inventory and the hierarchical experience of constraints were also cross-culturally applicable. This finding has important implications for future work on leisure constraints as well as for leisure research in general. First, it supports the need for cross-cultural research, both to sharpen our tools and concepts, but also to explore and understand them in a variety of cultural contexts. Second, it reminds us that, even when a study is confined to one particular culture, most of what we observe is inextricably grounded in that culture. Thus, although it may be difficult to achieve, exploration of the cultural context of our observations about leisure should be done more often and more deeply in our "detached" interpretations of "objective" data in "neutral" social science.

Research Limitations and Further Research

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. According to Visser, Krosnick, and Lavrakas

(2000), convenience sampling can be problematic because: (1) the people who volunteer may be more interested in the survey topic than those who do not; and (2) the sample's potential lack of representativeness may affect the generalizability of its findings. Visser et al. added, however, that the real value of non-probability studies lies in their testing of:

> whether a particular process occurs at all, to explore its mechanisms, and to identify its moderators. Any demonstrations along these lines enhance our understanding of the human mind, even if the phenomena documented occur only among select groups of American college sophomores. After an initial demonstration of an effect or process or tendency, subsequent research can assess its generality. (p. 237)

This proposition also holds true for exploratory studies with non-American university students. In China, for example, access to higher education is much more limited than in Canada or the United States (Research Report Group of Chinese Education and Human Resources, 2003). On the other hand, Nelson, Badger, and Wu (2004) held that because most Chinese universities are owned by the government and, therefore, its beliefs are reflected in these institutions' teachings, students may be "*more* likely to reflect Chinese culture than less so" (p. 35). Regardless, further leisure research with Chinese, Canadian, and other (e.g., American, Korean, Mexican) nonstudent populations, ideally using random sampling methods, is recommended.

There are three additional ways in which this study could be extended. First, in terms of intrapersonal constraints, because we took great care to ensure that the constructs we employed were cross-culturally appropriate (e.g., sub-dividing SDT's need for autonomy into personal and mutual choice), other constructs could not be included due to questionnaire length (and therefore participant refusal) concerns (Dillman, 2000). Of these absent constructs, we believe effort, competence, collective self-efficacy, and secondary control are especially worthy of inclusion in future cross-cultural intrapersonal constraints research. Second, beyond contributing to an inventory of intrapersonal constraints, we believe that other aspects of Ajzen's (1991) theory of planned behavior (TPB) could help us better understand leisure constraints generally—and the opposite also holds true. In this way, reciprocal and mutually beneficial cooperation could be established between TPB and leisure constraint researchers. And third, given that the study has supported the cross-cultural application of the hierarchical model of leisure constraints (Crawford et al., 1991), coupled with the fact that the first extension to the hierarchical model was the idea of constraints negotiation rather than passive acceptance (Jackson, Crawford, & Godbey, 1993), it follows that investigation of perceptions, patterns, and processes of the negotiation of leisure constraints *in a cross-cultural context* would be a logical next step.

Practical Implications

The findings of this study also have some practical implications. Jackson and Scott (1999), for example, held that recreation practitioners working

with minority group members "need to consider those constraints that inhibit the development of leisure preferences. . . . [and] they will need to develop strategies that teach individuals skills and to appreciate different leisure activities and leisure locales" (p. 311). Similarly, Xiao (2003) recommended that "to adequately prepare for the emergence of China's leisure industry, and the subsequent coming of a leisure-oriented society, leisure-related education and research should be emphasized, resulting in better-qualified personnel who can mange the development of this promising future" (p. 274). Thus, use of this study's inventory of intrapersonal constraints could aid the development of leisure education programs that are appropriate for both Chinese immigrants and Mainland Chinese people.

In closing, we concur with Chick and Dong's (2005) statements that "very little cross-cultural comparative research of any kind has been undertaken in the field of leisure studies up to now" (p. 179), and "the disregard of culture as an independent variable in the study of leisure constraints is itself highly constraining" (p. 179). And while we believe this paper addresses their concerns, we still recognize that the same Chinese adage we have used to conclude other articles in this topic area remains apt: *lu chang er dao yuan* ("There is a long way to go;" Gao, Ting-Toomey, & Gudykunst, 1996, p. 293).

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