



# A Cross-Cultural Comparison of Canadian and Mainland Chinese University Students' Leisure Motivations

Gordon J. Walker & Xiye Wang

To cite this article: Gordon J. Walker & Xiye Wang (2008) A Cross-Cultural Comparison of Canadian and Mainland Chinese University Students' Leisure Motivations, Leisure Sciences, 30:3, 179-197, DOI: [10.1080/01490400802014420](https://doi.org/10.1080/01490400802014420)

To link to this article: <http://dx.doi.org/10.1080/01490400802014420>



Published online: 12 May 2008.



Submit your article to this journal [↗](#)



Article views: 385



View related articles [↗](#)



Citing articles: 10 View citing articles [↗](#)

# A Cross-Cultural Comparison of Canadian and Mainland Chinese University Students' Leisure Motivations

GORDON J. WALKER  
XIYE WANG

University of Alberta  
Edmonton, Alberta, Canada

*This study examined the reliability and explanatory ability of a modified version of Deci and Ryan's self-determination theory as it applied to Canadian (n = 170) and Mainland Chinese (n = 229) university students' leisure motivations and determined whether these leisure motivations differed between the two cultural groups. An on-site questionnaire composed of seven motivational scales was developed. Alpha coefficients, confirmatory factor analyses, and scale intercorrelation comparisons supported self-determination theory's cross-cultural applicability. Profile analyses indicated as hypothesized that: (a) Canadian students were significantly more identified, introjected reward, and introjected punishment motivated than were Chinese students; and (b) Chinese and Canadian students were not significantly different in their intrinsic, integrated, external reward, and external punishment motivations. Findings are discussed in regard to leisure's universality.*

**Keywords** culture, leisure, motivation, self-determination theory, universality

“Very little cross-cultural comparative research of any kind has been undertaken in the field of leisure studies” (Chick & Dong, 2005, p. 179). Regarding leisure constraints, for example, Chick and Dong found relatively few cross-cultural comparative studies had been conducted, which led them to state that this disregard for culture was in itself highly constraining. Similarly in reviewing the literature related to the Chinese experience of *rùmí*, Walker and Deng (2003) uncovered only a handful of studies that examined leisure experiences across cultures. Finally, although self-determination theory (SDT; Deci & Ryan, 1985) has served as the basis for empirical studies of leisure motivations (Baldwin & Caldwell, 2003) and has been employed as an overarching framework to explain leisure motivations (Iso-Ahola, 1999; Mannell & Kleiber, 1997), SDT's cross-cultural applicability and utility as it applies to the leisure domain has rarely been investigated.

Undertaking cross-cultural comparative research could prove beneficial for the leisure studies field. As Berry, Poortinga, Segall, and Dasen (2002) stated regarding mainstream psychology, “by recognizing the limits of our current knowledge . . . and by seeking to extend our data and theory through the inclusion of other cultures . . . we can reduce the culture-bound nature of the discipline” (p. 9). Beyond the obvious benefits resulting from overcoming disciplinary ethnocentrism, cross-cultural research could also help answer more fundamental questions, including “Is leisure universal?”

Based on Chick and Dong's (2005) concern about the lack of cross-cultural comparative leisure research, this study includes two culturally distinct groups: Canadian and Mainland

Received 30 March 2006; accepted 28 March 2007.

Address correspondence to Gordon J. Walker, E-488 Van Vliet Centre, Faculty of Physical Education and Recreation, University of Alberta, Edmonton, Alberta, Canada, T6G 2H9, E-mail: gordon.walker@ualberta.ca

Chinese university students. Because SDT has often been used to guide and explain leisure motivation research in the past, this framework was used. However, since SDT's cross-cultural applicability and utility as it applies to the leisure domain has not been investigated previously, particular consideration was given to these two issues. This study had two research objectives:

1. To examine the reliability and explanatory ability of a modified version of SDT as it applied to Canadian and Mainland Chinese university students' leisure motivations, and
2. To determine whether these leisure motivations differed between the two cultural groups as hypothesized.

## Literature Review

### *Culture*

According to Chick (2006) and colleagues (Chick & Dong, 2005), defining culture is a notoriously difficult task. These researchers stress 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 group have to know in order to be accepted). Because conflating the two is problematic, the phenomenal approach typically informs the ideational approach (Chick & Dong, 2005). This phenomenal approach to culture with its emphasis on claimed cultural identity was employed in our study.

### *Self-Determination Theory*

Deci and Ryan (1985) hold that motivations range from intrinsic to integrated to identified to introjected to external to amotivation. The first has the greatest degree of perceived autonomy and the last the least. Intrinsic motivation involves interest, enjoyment, and engagement in activities for their own sake. *Integrated* motivation involves evaluation and assimilation into the self, whereas *identified* motivation involves valuing a goal as being personally important. In contrast, *introjected* motivations are performed to enhance pride or avoid guilt, whereas *external* motivations are performed to obtain rewards or avoid punishments. Finally, *amotivation* entails a person not acting at all, acting but being unaware of why he or she is doing so, or acting but essentially just "going through the motions" (Deci & Ryan, 1985).

Although researchers often combine introjected and external motivations to form a controlled motivation composite, during our review of the literature we did not uncover any researchers who had divided these two motivations into separate reward and punishment sub-dimensions. Evidence for doing so, however, is supported in Torrubia, Avila, Molto, and Caseras' (2001) proposition that sensitivity to reward and punishment are distinct concepts. Consequently, in our study we employ a modified version of SDT in which introjected and external motivations were each divided into reward and punishment subdimensions.

### *Culture, Self-Determination Theory, and Leisure Studies*

In its unmodified form SDT has been used in studies of leisure and studies of non-Western cultures, but seldom both. In the former case, Weissinger and Bandalos (1995) developed and tested a scale that measured people's intrinsic leisure motivation dispositions (i.e., the global motivation level; Vallerand, 2000). Baldwin and Caldwell (2003) and colleagues (Caldwell, Baldwin, Walls, & Smith, 2004) developed, tested, and used a scale that measured

adolescents' leisure motivations overall (i.e., the contextual motivation level; Vallerand). Psychologists have also examined SDT and various types of leisure activities including sports (Pelletier et al., 1995), exercise (Mullan, Markland, & Ingledew, 1997), and gambling (Chantal & Vallerand, 1996). In the latter case, SDT has been used with various non-Western cultural groups including, and of particular interest for this study, Chinese. D'Ailly (2003), for example, examined Taiwanese elementary students' academic motivations using a translated version of Ryan and Connell's (1989) questionnaire (SRQ-A). D'Ailly found that the SRQ-A did reliably measure external, introjected, identified, and intrinsic academic motivations of Chinese children along a continuum, which supported SDT. D'Ailly also found that the level of students' autonomy did not appear to have a direct effect on their effort expenditure in school. This finding led him to state that for Taiwanese children, hard work may be due more to external and identified motivations and less to intrinsic and introjected motivations. Vansteenkiste, Zhou, Lens, and Soenens (2005) challenged this conclusion, however, based on D'Ailly's statistical procedures.

Outside the academic domain Sheldon et al. (2004) used SDT to examine personal goal-striving or what they called self-concordance. Mainland Chinese, Taiwanese, American, and South Korean university students rated the extent to which they pursued eight self-identified personal goals for external, introjected, identified, and intrinsic reasons. Although the researchers hypothesized no significant motivational differences among the groups, the finding was true only of external motivation. Instead, (a) Taiwanese were significantly higher than Americans on introjected motivation, with Mainland Chinese not being different than either; (b) Americans were significantly higher than Taiwanese on identified motivation, with Mainland Chinese not being different than either; and (c) Mainland Chinese were significantly higher than Americans on intrinsic motivation, with Taiwanese not being different than either.

These studies lend support to the use of self-determination theory in leisure research and in research involving Chinese people and, therefore, to a cross-cultural comparative study of Chinese and Canadian university students' leisure. Although this type of study has not been conducted before, sufficient related research existed for us to put forward a series of hypotheses regarding the similarities and differences we expect to find in Chinese and Canadian university students' motivation for leisure at the contextual level.

Regarding intrinsic motivation, for example, we believed that the two cultural groups will not differ significantly. Our rationale for this hypothesis follows that of Sheldon et al. (2004) because "people's sense of interest and engagement in their personal goals as well as the enjoyment associated with those goals, should tend to be beneficial in every culture" (p. 211) as should their interest and enjoyment during leisure. Although Sheldon et al.'s study had mixed results research on the Chinese experience of *rúmi* (Walker & Deng, 2003) this phenomenon often occurred during leisure participation and interest and enthusiasm were its chief emotional characteristics.

Correspondingly for integrated motivation, we hypothesized no significant difference between the two cultural groups. Our rationale was based on Mannell and Kleiber's (1997) proposition that serious leisure (Stebbins, 1992) exemplifies this motivation, and this is taken in conjunction with Heo and Lee's (2007) finding that some Korean university students residing in the United States exhibited serious leisure's six qualities when they played basketball, suggested that integrated motivation will be equally motivating for Chinese and Canadian students during their leisure.

In contrast, we hypothesized that identified motivation will be significantly higher for Canadian university students than for Chinese students. Our rationale in this instance was based on research (Deng, Walker, & Swinnerton, 2005) that found Mainland Chinese who immigrated to Canada rated the cognitive dimension of leisure attitudes (e.g., leisure pursuits increase one's energy, happiness, etc.; Ragheb & Beard, 1982) significantly lower than

Anglo-Canadians. These findings suggested that these “overseas” Chinese viewed leisure as being less important and worthwhile. Moreover, a follow-up study (Walker, Deng, & Chapman, 2007) with Canadian and Mainland Chinese found the same result, although neither finding was unexpected since leisure in Mainland China has traditionally, and under communist rule until quite recently, had a less positive connotation. In addition, Chinese people’s achievement goals are typically to attain wealth, reputation, longevity, and morality and, consequently, they place greater emphasis on higher education and a strong work ethic than on leisure (Wang & Stringer, 2000). Although initially counterintuitive that our Chinese study participants would report a lower level of identified motivation but the same level of intrinsic motivation as our Canadian participants, as Deng et al. (2005) noted, an individual can find watching television interesting yet still devalue doing so.

Similarly, we hypothesized that the two introjected motivation sub-dimensions—reward and punishment—will be significantly higher for Canadian university students than for Chinese students. Our rationale was based on Markus and Kitayama’s (1991) contention that independent selves (i.e., Canadians) in comparison with interdependent selves (i.e., Mainland Chinese) will give greater import to ego-focused emotions such as pride (i.e., the archetypical affect associated with introjected reward) and guilt (i.e., the archetypical affect associated with introjected punishment). A recent study by Caldwell and Li (2006) supported this proposition as they found that American adolescents reported higher levels of non-differentiated introjected motivation during their leisure compared with adolescents in more collectivist cultures. Thus, we hypothesized that Canadian and Chinese university students will differ significantly in their introjected reward and punishment motivations for leisure with Canadians being higher in both instances.

Based on Markus and Kitayama’s (1991) work, we hypothesized that the two external motivation subdimensions—reward and punishment—would be significantly higher for Chinese university students than for Canadian students. Markus and Kitayama contrasted independent ego-focused emotions (e.g., guilt) with interdependent other-focused emotions (e.g., shame). Mascolo, Fischer, and Li’s (2003) research supports this distinction, as they found that shame was a more cognitively-developed emotion for Chinese than Americans. In addition, introjected reward may also differ, as Markus and Kitayama believed, for interdependent selves, roles, and statuses are important features and key tasks include fitting in, occupying one’s proper place, and engaging in appropriate action. Some support for their proposition exists. In Chinese culture, for example, *bu fu hou wang* (i.e., to live up to others expectations) is highly valued (Gao, 1998), and conforming to role expectations is seen as a sign of strength and maturity (Wong & Ahuvia, 1998). On the other hand, some research with Mainland Chinese people has found that leisure is often done alone (Freysinger & Chen, 1993; Ma, Deng, & Cheng, 2004; Wang & Stringer, 2000). Similarly, research with Mainland Chinese university students uncovered that they felt best able to express their “inner selves” in three activity domains: solitary hobbies, free time spent alone, and time spent with close friends (Tafarodi, Lo, Yamaguchi, Lee, & Katsura, 2004). These findings suggest that external reward and punishment motivations may vary in importance depending on the setting, how one views him or herself in this setting, or both. Consequently, we hypothesized that the two cultural group’s external reward and punishment motivations will not differ significantly. We contend that participants must be made aware of not only the context (e.g., school, leisure; Vallerand, 2000) but also the self-perspective (e.g., individual, family) being examined (cf. Sheldon, Ryan, Rawsthorne, & Ilardi, 1997).

In conclusion, the following omnibus hypothesis is put forth:

Identified, introjected reward, and introjected punishment motivations will be rated significantly higher by Canadian university students than by Chinese students,

whereas intrinsic, integrated, external reward, and external punishment motivations will not be rated significantly differently by the two cultural groups.

## Method

### *Study Instrument*

Both Canadian and Chinese university students completed a brief questionnaire consisting of an introductory statement, a series of motivational items, and various socio-demographic questions. The introductory statement asked participants as individuals why they did what they did during their spare time. Students used a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) to rate 21 motivational items with each sharing the same stem: "As an individual, I do what I do in my spare time. . . ." These 21 items represented the seven SDT motivations examined in this study (amotivation was not measured), and were either from or slightly modified from existing scales (Baldwin & Caldwell, 2003; Mullan, Markland, & Ingledew, 1997; Self-Regulation Questionnaires, 2003). In rare instances new items were developed due to conceptual or translation difficulties. Various socio-demographic variables were also measured, although gender was not, due to an oversight.

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

### *Study Sample*

A convenience sample of students attending an Alberta (Canada) and a Beijing (China) university was obtained. These two universities were selected based on similarities in size and comprehensiveness as well as participant accessibility. In Canada, students were approached at various university settings (e.g., atriums, food courts) and asked if they would participate in the study. Students in a first year survey course were also invited to participate in the study during the last 20 minutes of their regular class time. If they did so, they were remunerated \$1 Canadian. In China, students were approached at various university public areas by a *Pūtōnghuà* (Mandarin)-speaking Chinese research associate, and asked if they would participate in the study. If they did so, they were remunerated 5 Chinese yuan (approximately \$0.75 Canadian).

Study participants in Canada whose stated cultural background was other than solely Canadian or whose preferred spoken language was other than English were excluded, as were participants in China whose identified culture was other than solely Chinese or whose preferred spoken language was other than *Pūtōnghuà* or a Chinese dialect (e.g., Cantonese). This approach was consistent with Chick's (2006) description of claimed cultural identity as phenomenally defined (Goodenough, 1996). Information from nine Chinese study participants and 16 Canadian participants were also excluded because of extreme missing data (discussed further below). As a consequence, 170 Canadian and 229 Chinese university students remained in the study (57.8% and 96.2%, respectively). These groups were sufficiently large for the planned statistical analyses (Kelloway, 1998), yet sufficiently homogeneous to forestall concerns about being overly broad and all-inclusive, which is a critique often and accurately aimed at the leisure field (Stodolska & Yi-Kook, 2005).

Canadian and Chinese study participants were generally single (76.9% and 79.8%, respectively) and in the 18–24 year old range (88.8% and 83.4%, respectively). Most (89.4%) of the Canadians had some university or post-secondary training, while the majority of the

Chinese had either some university or post-secondary (38.4%), or graduate school (40.6%), training. Chinese participants were largely Han (86.0%), which is the majority ethnic group in China. Participants also reported which language they preferred to speak. As noted, we limited our Canadian participants to English-first speakers, but 31.4% stated they could also speak a second language, mostly French (67.3%). Chinese participants were similarly limited, but 94.3% reported they could speak a second language, primarily English (93.8%).

### *Data Analysis*

Data analysis consisted of six stages. First, study participants with extreme missing data (i.e., five or more motivation items) were excluded. Participants with few missing data had their absent responses replaced using within-group mean substitution (Downey & King, 1998). Although this method avoids some of the pitfalls of mean substitution, Tabachnick and Fidell (2006) note that it can result in spurious differences between groups. Data substitution was essential, however, for the confirmatory factor analyses that followed to be performed.

Second, to examine the reliability of the modified version of SDT, standardized Cronbach coefficient alphas were calculated for each of the motivational scales by cultural group. In addition, equality of the reliability coefficients was tested to determine if the corresponding scales' psychometric properties were similar (van de Vijver & Leung, 1997).

Third, confirmatory factor analyses (LISREL 8.72) were performed on the motivation factor structures by cultural group. Estimates of the parameters were derived using the maximum likelihood estimation method. Following Hayduk's (1987) recommendation, each factor's "best" (as determined by the researchers) indicator had its structural coefficient fixed at 1.0 and its measurement error variance fixed at the product of its 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.,  $\chi^2/d$  or the Likelihood ratio, CFI, GFI, NNFI, RMSEA, SRMR).

In addition, to indirectly test for the existence of the SDT continuum postulated by Deci and Ryan (1985), the average of the two conceptually closest motivation correlations and the average of the two conceptually most distant motivations' correlations were calculated (Pelletier, Tuson, & Haddad, 1997) by cultural group. These dependent correlations were then compared using the Hotelling-Williams test (Williams, 1959). According to Steiger (1980), the Hotelling-Williams test is the best way to compare two dependent correlations (i.e., correlations involving the same individual). In the case of intrinsic motivation, for example, the average of the integrated and identified motivation correlations was compared with the average of the external reward and punishment motivation correlations. Similarly, in the case of introjected reward, the average of the identified and the external punishment motivation correlations was compared with the average of the intrinsic and external punishment motivation correlations.

Fourth, to determine if dividing SDT's external and introjected motivations into separate reward and punishment dimensions provided any additional insight into students' leisure, paired sample t-tests were conducted on these four motivations within each cultural group (as per Sheldon et al., 1997).

Fifth, to test our hypotheses, profile analysis was used. Profile analysis is a special form of multivariate analysis of variance (MANOVA) that can be used when all of the dependent variables are measured on the same scale and the researcher wants to know if groups differ on these scales (Tabachnick & Fidell, 2006). Two profile analyses were performed with the three motivations (i.e., identified, introjected reward, introjected punishment) we

hypothesized Canadian university students would rate significantly higher than Chinese students and with the four motivations (i.e., intrinsic, integrated, external reward, external punishment) we hypothesized would not be rated significantly differently by the two cultural groups.

Finally, paired sample t-tests by cultural group were performed between the highest and the next highest rated motivations to determine if significant differences existed.

## Results

The 21 motivation items and the means, standard deviations, and standardized Cronbach coefficient alphas for the associated scales are reported in Table 1. Five items were dropped. After deletion, scale coefficient alphas were all above or near accepted levels (i.e., .6; Nunnally, 1967; .5, Schmitt, 1996), especially when the number of constructs being measured is taken into account. In terms of the latter, Cronbach and Gleser (1965) described this trade-off between fidelity and bandwidth. In the case of the current study, for example, to measure all seven types of motivations—without incurring respondent boredom and fatigue (Burisch, 1984)—two to three items per scale seemed reasonable.

Equality of the seven motivational scales' reliability coefficients was tested using van de Vijver and Leung's (1997) recommended procedure. Only the difference on the integrated motivation's reliability coefficient was significant at  $p < .01$ , after Bonferroni adjustments. Thus, while the reliability coefficients for the other six motivations suggested construct equivalence (van de Vijver & Leung, 1997), this result could mean that Chinese students do not consciously value leisure participation as personally important in the same way as Canadians. Because other explanations for this finding exist that we will discuss later and because the integrated motivation scale's coefficient alpha of .71 was reasonably high, we decided to continue to employ this scale with the Chinese study participants.

The 16 remaining items composing the seven motivations underwent confirmatory factor analysis by cultural group. As the number of data points ( $n = 136$ ) exceeded the number of parameters to be estimated ( $n = 53$ ; Tabachnick & Fidell, 2006), and the "Two Measure Rule" (i.e., every latent construct had at least two measures and every construct was correlated with at least one other construct; Rigdon, 1997) was met, the model was deemed identified. Maximum likelihood was employed to estimate all models, and covariance matrices were examined. For the Canadian group the hypothesized model,  $\chi^2 (83, N = 170) = 122.40$ ,  $p = .0032$ , Likelihood ratio = 1.47, CFI = .97, GFI = .92, NNFI = .96, RMSEA = .05, SRMR = .06. The model's nine free structural coefficients were all positive and significant ( $p < .05$ ). For the Chinese group the hypothesized model,  $\chi^2 (83, N = 229) = 186.30$ ,  $p = .0000$ , Likelihood ratio = 2.24, CFI = .94, GFI = .91, NNFI = .91, RMSEA = .07, SRMR = .06. Once again, the model's nine free structural coefficients were all positive and significant ( $p < .05$ ). For comparative purposes Carmines and McIver (1981) held that a Likelihood ratio of two or three to one was reasonable. For fit indices such as the CFI, GFI, and NNFI, Klem (2000) contended that a rough rule of thumb is  $> .9$  indicated model acceptability. Based on the results of their Monte Carlo analyses, however, Hu and Bentler (1999) recommended a CFI close to .95. Similarly, Hu and Bentler recommended a cut-off value close to .06 for RMSEA, although they added that this test tended to over-reject true population models when sample size was small ( $N \leq 250$ ). As this was the case for both groups in this study, use of the SRMR at their recommended level of close to .08 may be a better indicator of a good-fitting model. In conclusion, as our CFA results generally met or exceeded the above criteria, both cultural groups' hypothesized models were supported.

Table 2 reports the motivation intercorrelations whereas Table 3 reports the average of the two conceptually closest motivations' correlations and the average of the two

**TABLE 1** Motivation Items and Scale Means, Standard Deviations, and Cronbach Coefficient Alphas, and Reliability Coefficients, by Cultural Group

Motivation Scale and Items	Canadian			Chinese			F-Ratio
	<i>M</i>	<i>SD</i>	<i>Alpha</i>	<i>M</i>	<i>SD</i>	<i>Alpha</i>	
Intrinsic	6.28	0.72	.75	6.10	0.83	.72	1.12
Because what I do is interesting for me							
Because the activities I do are enjoyable for me							
Because it is fun for me as an individual							
Integrated	5.69	1.09	.80	5.68	1.08	.71	1.45*
Because it is part of my personal identity							
Because the activities I do are part of who I am as a person							
Because, as an individual, the activities I do reflect who I am (D)							
Identified	6.04	0.86	.74	5.70	1.00	.66	1.31
Because, as an individual, the activities I do are important to me							
Because the activities I do are worthwhile to me as an individual							
Because it reflects my personal values (D)							
Introjected Reward	5.77	1.00	.61	5.48	1.01	.58	1.08
Because it makes me think more positively about myself							
Because the activities I do make me feel good about myself							
Because of the rewards I give myself afterwards (D)							
Introjected Punishment	4.19	1.46	.78	3.66	1.39	.70	1.36
Because if I don't do it, I feel guilty							
Because I would feel upset with myself if I didn't do it							
Because of the pressure I put on myself to do it (D)							
External Reward	3.50	1.23	.64	3.61	1.21	.67	1.09

**TABLE 1** Motivation Items and Scale Means, Standard Deviations, and Cronbach Coefficient Alphas, and Reliability Coefficients, by Cultural Group (*Continued*)

Motivation Scale and Items	Canadian			Chinese			F-Ratio
	<i>M</i>	<i>SD</i>	<i>Alpha</i>	<i>M</i>	<i>SD</i>	<i>Alpha</i>	
Because it makes others think more positively about me							
Because the activities I do make others feel good about me							
Because of the rewards others give me afterwards							
External Punishment	2.50	1.30	.74	2.61	1.22	.71	1.12
Because if I don't do it, others might feel ashamed of me							
Because others would be upset with me if I didn't do it							
Because of the pressure others put on me to do it (D)							

*Note.* The shared item stem was: "As an individual, I do what I do in my spare time..." A "D" following a scale item indicates deletion.

\**p* < .01.

conceptually most distant motivations' correlations, all by cultural group. The Hotelling-Williams test results indicated that, consistent with Deci and Ryan's (1985) contention that self-determination is ordered along a continuum, adjacent motivations have moderate to high positive correlations whereas motivations that are furthest apart have very low positive or moderate to high negative correlations. In all but one instance these differences were significant at *p* < .01 one-sided, and this exception (i.e., the introjected punishment motivation for Chinese) was significant at *p* < .05 one-sided.

**TABLE 2** Intercorrelations for Motivation Scales, By Cultural Group

Motivation Scale	1	2	3	4	5	6	7
1. Intrinsic	—	.59	.66	.45	-.13	-.11	-.31
2. Integrated	.52	—	.67	.50	.07	-.10	-.19
3. Identified	.50	.61	—	.61	.15	-.10	-.20
4. Introjected reward	.21	.30	.45	—	.29	.06	-.19
5. Introjected punishment	-.08	-.01	.18	.15	—	.30	.40
6. External reward	-.18	-.19	-.05	.18	.17	—	.56
7. External punishment	-.28	-.18	-.07	-.06	.49	.37	—

*Note.* Intercorrelations for Canadian participants (*n* = 170) are presented above the diagonal, and intercorrelations for Chinese participants (*n* = 229) are presented below the diagonal.

**TABLE 3** Inter-Motivation Pearson Correlations and T-Test for Equality of Dependent Correlation Results, By Cultural Group

Motivation Scale	Canadian			Chinese		
	Nearest	Furthest	<i>t</i>	Nearest	Furthest	<i>t</i>
Intrinsic	.63	-.21	8.28**	.51	-.23	8.26**
Integrated	.63	-.15	7.27**	.57	-.19	8.36**
Identified	.64	-.15	7.77**	.53	-.06	6.60**
Introjected reward	.45	.13	3.55**	.30	.08	2.74**
Introjected punishment	.29	-.03	3.38**	.16	-.05	2.23*
External reward	.43	-.11	4.74**	.27	-.19	5.38**
External punishment	.48	-.25	7.32**	.43	-.23	7.24**

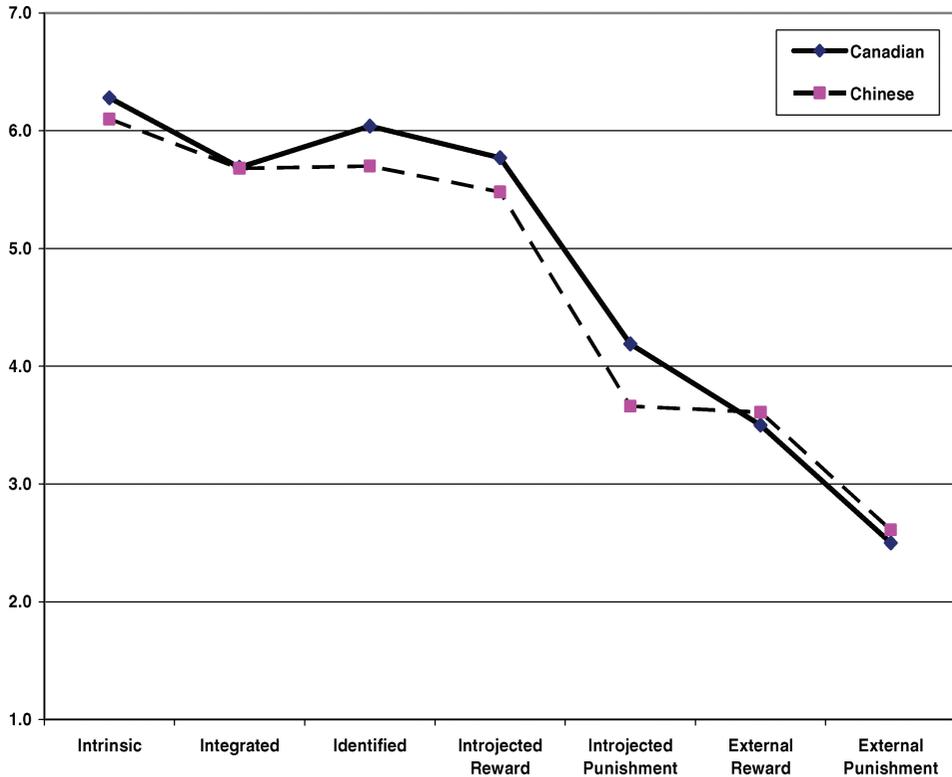
*Note.* Nearest is the average of the two conceptually closest motivations' Pearson correlations. Furthest is the average of the two conceptually most distant motivations' Pearson correlations. The Hotelling-Williams test was used to compare the two averages.

\*  $p < .05$ , one-tailed. \*\*  $p < .01$ , one-tailed.

Paired sample t-tests were performed between the introjected reward and punishment motivations, and the external reward and punishment motivations, within each cultural group (Sheldon et al., 1997). All four tests were significant at  $p < .01$ , after Bonferroni adjustments. Specifically: (a) for the two introjected motivation sub-dimensions, the Canadian university students' difference in means was 1.57,  $t = 13.62$ ,  $p < .0001$ ,  $d = 1.04$ , whereas the Chinese students' difference in means was 1.82,  $t = 17.28$ ,  $p < .0001$ ,  $d = 1.14$ ; and (b) for the two external motivation sub-dimensions, the Canadian students' difference in means was 1.00,  $t = 10.99$ ,  $p < .0001$ ,  $d = .84$ , whereas the Chinese students' difference in means was 1.00,  $t = 11.08$ ,  $p < .0001$ ,  $d = 0.73$ . For comparative purposes, Cohen (1988) holds that a medium effect size is  $\geq .50$  whereas a large effect size is  $\geq .80$ .

The first profile analysis examined between-group differences on the three motivations (identified, introjected reward, and introjected punishment) we hypothesized Canadian university students *would* rate significantly higher than Chinese students. The test of parallelism (i.e., interaction) was not significant Wilk's  $\Lambda = .99$ ,  $F(2, 396) = 1.27$ ,  $p > .10$ . However, both the levels test (i.e., groups) and the test of flatness (i.e., measures) were significant [ $F(1, 397) = 22.20$ ,  $p < .0001$ ; Wilk's  $\Lambda = .40$ ,  $F(2, 396) = 302.05$ ,  $p < .0001$ , respectively]. Because the flatness test is relevant only if the profiles are parallel, only the group means for the three motivations were subsequently compared. As hypothesized, the: (a) *identified* motivation was rated significantly higher,  $F(1, 397) = 12.61$ ,  $p < .001$ ,  $R^2 = .03$ , by Canadian students ( $M = 6.04$ ,  $SD = 0.86$ ) than by Chinese students ( $M = 5.70$ ,  $SD = 1.00$ ); (b) *introjected reward* motivation was rated significantly higher,  $F(1, 397) = 7.88$ ,  $p < .01$ ,  $R^2 = .02$ , by Canadian students ( $M = 5.77$ ,  $SD = 1.00$ ) than by Chinese students ( $M = 5.48$ ,  $SD = 1.01$ ); and (c) *introjected punishment* motivation was rated significantly higher,  $F(1, 397) = 13.96$ ,  $p < .001$ ,  $R^2 = .03$ , by Canadian students ( $M = 4.19$ ,  $SD = 1.46$ ) than by Chinese students ( $M = 3.66$ ,  $SD = 1.39$ ). Although these three did differ significantly and in the expected direction, worth noting is that all of the effect sizes were small based on Cohen's (1988) criterion. Finally, to aid readers' understanding of these results as well as those that follow the seven leisure motivations' means, by cultural group, are also presented as a figure (Figure 1).

The second profile analysis examined between-group differences on the four motivations (intrinsic, integrated, external reward, and external punishment) we hypothesized



**FIGURE 1** Leisure motivation means, by cultural group.

Chinese and Canadian university students *would not* rate significantly differently. The test of parallelism (i.e., interaction), Wilk's  $\Lambda = .98$ ,  $F(3, 395) = 2.06$ ,  $p > .10$ , nor the levels test (i.e., groups),  $F(1, 397) = 0.03$ ,  $p > .10$ , was not significant. Because the levels test result reflects all four motivations combined, however, each motivation was also analyzed separately. As expected no significant differences were found by cultural group for the *integrated*,  $F(1, 397) = 0.01$ ,  $p > .10$ , *external reward*,  $F(1, 397) = 0.86$ ,  $p > .10$ , and *external punishment*,  $F(1, 397) = 0.72$ ,  $p > .10$ , motivations. Moreover, although the *intrinsic* motivation did differ,  $F(1, 397) = 4.73$ ,  $p < .05$ ,  $R^2 = .01$ , it was not at the Bonferroni adjusted level of  $p < .01$ . The test of flatness was significant, Wilk's  $\Lambda = .17$ ,  $F(3, 395) = 640.07$ ,  $p < .0001$ . However, because the profiles were *not* parallel we did not compare the motivation means.

Finally, two paired sample t-tests were performed between the highest and the next highest rated motivations (intrinsic and identified, respectively, in both cases). The Canadian students' difference in means was 0.23,  $t = 4.47$ ,  $p < .0001$ ,  $d = .34$ , whereas the Chinese students' difference in means was 0.40,  $t = 6.56$ ,  $p < .0001$ ,  $d = .43$ .

## Discussion

This study had two research objectives. The first was to examine the reliability and explanatory ability of a modified version of SDT as it applies to Canadian and Mainland Chinese university students' leisure motivations and the second was to determine whether these leisure motivations differed between the two cultural groups as hypothesized.

### **Research Objective One**

Our findings suggest that the motivation scales used in this study were generally reliable in terms of internal consistency. Moreover, based on these scales' reliability coefficients this consistency is true for both Chinese and Canadian students with the exception of integrated motivation. According to van de Vijver and Leung (1997), scale reliabilities can vary across cultural groups for a variety of reasons including administration difficulties, differential response styles, and construct inequivalence. As we are not aware of any problems administering the study, nor did it appear that Chinese students were prone to response-set bias (e.g., primarily using the center points of the rating scales; van de Vijver & Leung, 1997), construct inequivalence may be a factor. On the other hand, the identified motivation's reliability coefficient was not significant at  $p < .01$  (i.e., the Bonferroni adjusted level), but was significant at the customary level of  $p < .05$ . Thus, this outcome may be due more to the type of error protection that was emphasized than to any conceptual issue.

Correspondingly, the Hotelling-Williams test results also largely supported the proposed ordering of the seven motivations for both cultural groups with the exception of the introjected punishment subdimension for Chinese university students. On re-examining the data, it appears that the primary cause for this inconsistency is this motivation's correlations with its two conceptually closest neighbors (introjected and external reward). Less clear is why these correlations were both small. Initially we thought that this result might mean that, for Chinese, the correct sequence was: intrinsic, integrated, identified, introjected reward, external reward, introjected punishment, external punishment. However, after re-running the data using this new ordering the Hotelling-Williams tests showed that while the introjected and external reward motivations' results improved, the other five motivations' results worsened. Thus, we now believe this outcome may be less a conceptual challenge to SDT and more a statistical snag resulting from how we scrutinized our findings. Specifically, for Chinese students the introjected punishment motivation was significant at the customary one-sided level of  $p < .05$  but not at the Bonferroni adjusted one-sided level of  $p < .01$ . As Li, Chick, Zinn, Absher, and Graefe (2007) recently noted, leisure researchers have for far too long conducted multiple comparison tests without concern for Type I errors (i.e., incorrectly assuming that an observed difference exists). They also acknowledged one of the problems with using a correction for multiple tests is that Type II errors may be more likely to occur (i.e., incorrectly assuming that an observed difference does not exist when, in fact, it does). This is problematic as one potential outcome is that further research may be stifled particularly in less studied areas (Gregoire & Driver, 1987).

The next step evaluated whether dividing the introjected and external motivations into separate reward and punishment subdimensions provided any additional insight into Chinese and Canadians university students' leisure. Study results showed that both Chinese and Canadian students were significantly more motivated by introjected reward (e.g., pride) than by introjected punishment (e.g., guilt), and significantly more motivated by external reward (e.g., others' positive responses) than by external punishment (e.g., others' being ashamed). Also clear is that the practical importance of these differences for both cultural groups was of a large magnitude for external reward and punishment and an "extra large" magnitude for introjected reward and punishment. Thus, these findings supported Torrubia et al.'s (2001) proposition that sensitivity to reward and punishment are distinct concepts. The findings also support our corollary that the external and introjected motivations are composed of two subdimensions: reward and punishment.

Besides providing a more accurate depiction of the SDT framework, this modification also has measurement implications. Baldwin and Caldwell (2003), for example, developed an adolescent free time motivation scale (FTMS-A) composed of five SDT's motivations: intrinsic, identified, introjected, external, and amotivation. The FTMS-A's introjected

motivation scale included items such as “I want to impress my friends” and “I would feel badly about myself if I don’t” (p. 136). We contend that the former is indicative of reward and the latter of punishment. Because of this conceptual conflation, in subsequent studies that have used this scale (e.g., Caldwell et al., 2004), participants’ introjected motivation scores may either have been an “average” of these two subdimensions (i.e., if there was an equal number of reward and punishment items) or biased toward one subdimension over the other (i.e., if there was an unequal number of reward and punishment items). Consequently, the importance of introjected reward as a motivation for leisure may not have been properly acknowledged. This oversight could also hold true for external reward. Further, it could extend beyond studies in the leisure field to those conducted in mainstream psychology as well.

### *Research Objective Two*

Our second research objective hypothesized that while the two cultural groups would not rate the intrinsic, integrated, and external reward and punishment motivations significantly differently, Canadian students would rate the identified and introjected reward and punishment motivations significantly higher than Chinese students. As outlined in the literature review, we expected correctly that the first four motivations would not differ because interest and enjoyment as integral aspects of intrinsic motivation (Deci & Ryan, 1985) are basic emotions (Izard, 1977) beneficial across cultures (Sheldon et al., 2004). Although external reward and punishment motivations are concerned with how others think, feel, and behave toward one another, and these cognitive, emotional, and behavioral matters are usually emphasized more by interdependent than independent selves (i.e., Chinese and Canadians, respectively; Markus & Kitayama, 1991), study participants were told to respond as individuals and in regard to their spare time activities. Because of these delimitations, Chinese students were likely less concerned with other people’s thoughts, feelings, and behaviors than usual. Correspondingly, Chinese students were likely less motivated by external promises of rewards and threats of punishment than usual. Since serious leisure (Stebbins, 1992) epitomizes integrated motivation (Mannell & Kleiber, 1997), and recent research suggests that some Asian (albeit not Chinese) students do engage in serious leisure (Heo & Lee, 2007), it seemed reasonable to propose that Chinese and Canadian students would not differ in this motivation. However, because so few leisure studies have examined integrated motivation, the rationale for this hypothesis was not as firm as that for the other six. Regardless, as was hypothesized, the integrated, intrinsic, external reward, and external punishment motivations did not differ significantly between the two cultural groups.

In contrast, we hypothesized that Canadian university students would rate the identified, introjected reward, and introjected punishment motivations significantly higher than the Chinese students. As outlined in the literature review, we expected correctly that these motivations would differ in this direction because the identified motivation involves “conscious valuing of a behavioral goal” (Ryan & Deci, 2000, p. 72), and researchers have found that Chinese people generally view leisure less positively than Westerners (Walker, Deng, & Chapman, 2007), and stress higher education and a strong work ethic instead (Wang & Stringer, 2000). In addition, the introjected reward and punishment motivations are concerned with how people think and feel about themselves, and these cognitive and emotional matters are usually emphasized more by independent than interdependent selves (i.e., Canadians and Chinese, respectively; Markus & Kitayama, 1991). Because study participants were told to respond as individuals regarding their spare time activities, Canadian students were likely more aware of their own thoughts and feelings than usual. Correspondingly, Canadian students were likely more motivated by internal promises of rewards (e.g., pride) and threats of punishment (i.e., guilt) than usual, as well.

Although identified, introjected reward, and introjected punishment did differ significantly between Chinese and Canadian university students, all three effect sizes were small. These results suggest that from a practical perspective, cross-cultural differences in leisure motivations may be relatively unimportant. Other study findings offer further support for this proposition. For example, both cultural groups' profiles for the identified, introjected reward, and introjected punishment motivations were parallel as were their profiles for the intrinsic, integrated, external reward, and external punishment motivations. In addition, examination of Figure 1 shows that Chinese and Canadian students were motivated by intrinsic, integrated, identified, and introjected reward, but not by introjected punishment, external reward, or external punishment during their spare time. Finally of the four relevant leisure motivations, intrinsic motivation was the most important for both cultural groups.

Examined in their entirety, these results lend credence to recent contentions (Li et al., 2007; Walker, Dieser, & Deng, 2005) that leisure studies may have overemphasized ethnic and cultural differences and underemphasized ethnic and cultural similarities. On the other hand, these findings can also be interpreted as support for Chick's (1998, 2006) proposition that leisure is universal. According to Berry et al. (2002), universalism "adopts the working assumptions that basic psychological processes are likely to be common features of human life everywhere, but that their manifestations are likely to be influenced by culture" (p. 326). In contrast, Berry et al. stated that relativists assume a general egalitarian stance (e.g., "all people are equal") and explained any differences as being due to cultural contexts that influence people's development. Berry et al. added that absolutists place little if any value on culture. From a universalist perspective, therefore, we would expect numerous similarities, but also a few culturally-influenced differences in leisure motivations. These results were found in our study.

The discovery that both Chinese and Canadian students reported that their leisure was highly intrinsically motivated exemplified this point. This outcome was not unexpected, as Western scholars have long held that intrinsic motivation is a defining characteristic of leisure (Mannell & Kleiber, 1997). Studies with Chinese people residing in North America suggest a similar experience and characterization (Walker & Deng, 2003). Walker, Deng, and Dieser (2005) concurred; however, they also contended that the three needs SDT holds facilitate intrinsic motivation (i.e., autonomy, competence, and interpersonal relatedness; Ryan & Deci, 2000) could vary in importance across cultures. As Mannell (2005) rejoined, Walker et al. provided "a highly relevant example of how an important social psychological and leisure construct, like intrinsic motivation, might operate as a basic psychological process across cultures but affect experiential and behavioral outcomes, including leisure, differently depending on cultural context" (p. 100). Although not explicitly stated, Mannell's comments are congruent with Berry et al.'s (2002) description of universalism.

Recently other theoretical frameworks have also been found to have a universalistic orientation including Ajzen's (1991) theory of planned behaviour (TPB) and Crawford, Jackson, and Godbey's (1991) hierarchical leisure constraints model. Walker, Courneya, and Deng (2006), for example, hypothesized that the TPB would be cross-culturally applicable, but that injunctive norm (i.e., do significant others approve or disapprove?) would predict lottery play only for Chinese/Canadian males, whereas descriptive norm (i.e., do significant others play or not?) would predict lottery play only for British/Canadian males. All three study hypotheses were supported. Similarly, Walker, Jackson, and Deng (2007, 2008) hypothesized that the hierarchical leisure constraints model would be cross-culturally applicable, but that Chinese university students would be more intrapersonally constrained whereas Canadian students would be more structurally constrained. All three study hypotheses were supported. This "backing" of TPB, SDT, and the leisure constraints hierarchical model,

however, should not be construed as either blind or blanket acceptance. Rather, not only the limitations of the cross-cultural leisure studies have employed these theories (including the limits of the current study, described more fully below), but also that although these theoretical frameworks may be applicable across cultures, *how* they apply across cultures can and does vary.

## Conclusion

As with any research, limitations exist. In this instance limitations primarily center on the use of a convenience sample composed of Chinese and Canadian university students. As Visser, Krosnick, and Lavrakas (2000) stated, convenience sampling can be a concern because the people who volunteer may be more interested in the survey topic than those who do not and the sample's potential lack of representativeness may affect the findings' generalizability. Visser et al. added, however, that the true value of nonprobability studies is in testing whether a particular process occurs at all since subsequent research can assess its generality. Unfortunately, as van de Vijver and Leung (1997) noted, simple random sampling is not necessarily a panacea. They argued that simple random sampling can make determining whether found differences are due to cultural variation or the result of other factors (e.g., education level) more difficult

The issue of "students versus non-students" is equally complicated. Research suggests, for example, that American students are more homogenous than American non-students and, consequently, effects sizes can vary in both direction and magnitude (Peterson, 2001). Similarly, because access to higher education is more limited in China than in Canada or the United States (Research Report Group of Chinese Education and Human Resources, 2003), the same outcomes may be found. Contrastingly, Nelson, Badger, and Wu (2004) held that because most Chinese universities are owned by the government and therefore, the government's beliefs are reflected in these institutions' teachings, students may be "more likely to reflect Chinese culture than less so" (p. 35). Therefore, a better understanding of the use of convenience samples composed of university students is needed before it can be determined the extent, if any, to which this sampling is a limitation in cross-cultural comparative leisure research.

Another, arguably less contentious, limitation is that amotivation was not measured. This could be a concern however as Sivan (2006) found that Hong Kong Chinese often reported being unsure why they participated in leisure. Gender, too, was not measured in this case because of an oversight. Gender also could be a concern as Caldwell et al. (2004) found in their study of mostly Euro-American adolescents that non-differentiated external motivation was significantly more important for males than females during leisure. Finally, in terms of how we analyzed our data, researchers should consider checking for a simplex pattern in the subscale correlation matrices to directly test for a SDT continuum rather than using Pelletier et al.'s (1995) more indirect method.

The aforementioned limitations can be easily overcome, and we recommend that researchers address these issues in the future. We also recommend that future cross-cultural comparative research examine how SDT varies during leisure depending on the self-construal a person has (e.g., independent vs. interdependent; Markus & Kitayama, 1991) and the self-perspective he or she takes (e.g., as an individual vs. as a family). In addition, leisure research employing SDT should be compared with other contexts (e.g., work, school; Vallerand, 2000), examined at the global (or personality) and situational (or immediate experience) motivational levels (Vallerand, 2000), and replicated with ethnic (e.g., Chinese-Canadians) and other cultural (e.g., Cree, Korean) groups. Finally, based on intrinsic motivation's principal role in leisure, empirical testing of Walker, Deng, and Dieser's

(2005) proposition that the three needs SDT holds facilitate intrinsic motivation (Ryan & Deci, 2000) vary in importance across cultures appears worthwhile.

We began this article with Chick and Dong's (2005) contention that "very little cross-cultural comparative research of any kind has been undertaken in the field of leisure studies" (p. 179). We disagree, however, with their assertion that the leisure field's strong paradigmatic basis in social psychology is partly responsible for this research gap. Rather, it is not *less* social psychology that is needed but *more*, albeit of a certain type. Simply put, if leisure studies hopes to overcome its disciplinary ethnocentrism then it must develop a cross-cultural social psychology of leisure. The current study represents one step toward this end.

### Acknowledgements

Preparation of this article was supported by a grant to the first author from the Social Sciences and Humanities Research Council of Canada. We would like to thank the Associate Editor and two reviewers for their thorough and thoughtful comments.

### References

- Ajzen, I. (1991). The theory of planned behavior. *Organisational Behavior and Human Decision Process*, *50*, 179–211.
- Baldwin, C. & Caldwell, L. (2003). Development of the free time motivation scale for adolescents. *Journal of Leisure Research*, *35*, 129–151.
- Berry, J., Poortinga, Y., Segall, M., & Dasen, P. (2002). *Cross-cultural psychology: Research and applications* (2nd ed.). Cambridge, UK: Cambridge University Press.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, *1*, 185–216.
- Burisch, M. (1984). Approaches to personality inventory construction: A comparison of merits. *American Psychologist*, *39*, 214–227.
- Caldwell, L., Baldwin, C., Walls, T., & Smith, E. (2004). Preliminary effects of a leisure education program to promote healthy use of free time among middle school adolescents. *Journal of Leisure Research*, *36*, 310–335.
- Caldwell, L. & Li, H. (2006). A cross-national comparison of leisure motivation among adolescents. In W. Hendricks & I. Schneider (Compilers), *Abstracts from the 2006 Symposium on Leisure Research* (p. 37; CD). Ashburn, VA: National Recreation and Parks Association.
- Carmines, E. & McIver, J. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In G. Bohrnstedt & E. Borgatta (Eds.), *Social measurement: Current issues* (pp. 65–115). Beverly Hills, CA: Sage.
- Chantal, Y. & Vallerand, R. (1996). Skill versus luck: A motivational analysis of gambling involvement. *Journal of Gambling Studies*, *12*, 407–418.
- Chick, G. (1998). Leisure and culture. *Leisure Sciences*, *20*, 111–133.
- Chick, G. (2006). Leisure and cultural identity. In E. L. Jackson (Ed.), *Leisure and the quality of life: Impacts on social, economic, and cultural development: Hangzhou Consensus* (pp. 164–178). Zhejiang, China: Zhejiang University Press.
- Chick, G. & Dong, E. (2005). Cultural constraints on leisure. In E. L. Jackson (Ed.), *Constraints to leisure* (pp. 169–183). State College, PA: Venture.
- Cohen, J. (1988). *Statistical power analyses for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Crawford, D., Jackson, E. L., & Godbey, G. (1991). A hierarchical model of leisure constraints. *Leisure Sciences*, *13*, 309–320.
- Cronbach, L. & Gleser, G. (1965). *Psychological tests and personnel decisions* (2nd ed.). Urbana, IL: University of Illinois Press.
- D'Ailly, H. (2003). Children's autonomy and perceived control in learning: A model of motivation and achievement in Taiwan. *Journal of Educational Psychology*, *95*, 84–96.

- Deci, E. & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Deng, J., Walker, G. J., & Swinnerton, G. (2005). Leisure attitudes: A comparison between Chinese in Canada and Anglo-Canadians. *Leisure/Loisir*, 29, 239–273.
- Downey, R. G. & King, C. V. (1998). Missing data in Likert ratings: A comparison of replacement methods. *The Journal of General Psychology*, 125, 175–191.
- Freysinger, V. & Chen, T. (1993). Leisure and family in China: The impact of culture. *World Leisure and Recreation*, 35, 22–24.
- Gao, G. (1998). “Don’t take my word for it.”—Understanding Chinese speaking practices. *International Journal of Intercultural Relations*, 22, 163–186.
- Goodenough, W. H. (1996). Culture. In D. Levinson & M. Ember (Eds.), *Encyclopedia of cultural anthropology* (Vol. 1, pp 291–299). New York: Henry Hold and Company.
- Gregoire, T. & Driver, B. (1987). Type II errors in leisure research. *Journal of Leisure Research*, 19, 261–272.
- Hayduk, L. (1987). *Structural equation modeling with LISERL*. Baltimore, MD: Johns Hopkins University Press.
- Heo, J. & Lee, Y. (2007). “I don’t want to feel like a stranger”: Korean students who play basketball seriously. *Leisure/Loisir*, 31, 133–154.
- Hu, L. & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Convention criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Iso-Ahola, S. E. (1999). Motivational foundations of leisure. In E. Jackson & T. Burton (Eds.), *Leisure studies: Prospects for the twenty-first century* (pp. 35–51). State College, PA: Venture.
- Izard, C. (1977). *Human emotions*. New York: Plenum.
- Kelloway, E. K. (1998). *Using LISERL for structural equation modeling: A researcher’s guide*. Thousand Oaks, CA: Sage.
- Klem, L. (2000). Structural equation modeling. In L. Grimm & P. Yarnold (Eds.), *Reading and understanding more multivariate statistics* (pp. 227–259). Washington, DC: American Psychological Association.
- Li, C., Chick, G., Zinn, H., Absher, J., & Graefe, A. (2007). Ethnicity as a variable in leisure research. *Journal of Leisure Research*, 39, 514–545.
- Ma, H., Deng, L., & Cheng, S. (2004). The leisure problems in the aging Chinese society. In J. Zhang & H. Ma (Eds.), *Survey studies of the state of leisure life among the Chinese public* (pp. 192–207). Beijing: Chinese Economy Publishing. [Published in Chinese.]
- Mannell, R. (2005). Evolution of cross-cultural analysis in the study of leisure: Commentary on “Culture, self-construal, and leisure theory and practice.” *Journal of Leisure Research*, 37, 100–105.
- Mannell, R. & Kleiber, D. (1997). *A social psychology of leisure*. State College, PA: Venture.
- Markus, H. & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224–253.
- Mascolo, M., Fischer, K., & Li, J. (2003). Dynamic development of component systems of emotions: Pride, shame, and guilt in China and the United States. In R. Davidson, K. Scherer, & H. Goldsmith (Eds.), *Handbook of affective science* (pp. 374–408). Oxford, UK: Oxford University Press.
- Mullan, E., Markland, D., & Ingledew, D. (1997). Motivation for exercise: Development of a measure of behavioral regulation. *Journal of Sports Sciences*, 15, 98–99.
- Nelson, L., Badger, S., & Wu, B. (2004). The influence of culture in emerging adulthood: Perspectives of Chinese college students. *International Journal of Behavioral Development*, 28, 26–36.
- Nunnally, J. C. (1967). *Psychometric theory* (1st ed.). New York: McGraw-Hill.
- Pelletier, L., Fortier, M., Vallerand, R., Tuson, K., Briere, N., & Blais, M. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport and Exercise Psychology*, 17, 35–53.
- Pelletier, L., Tuson, K., & Haddad, N. (1997). Client motivation for therapy scale: A measure of intrinsic motivation, extrinsic motivation and amotivation for therapy. *Journal of Personality Assessment*, 68, 414–435.

- Peterson, R. (2001). On the use of college students in social science research: Insights from a second-order meta-analysis. *Journal of Consumer Research*, 28, 450–461.
- Ragheb, M. & Beard, J. (1982). Measuring leisure attitude. *Journal of Leisure Research*, 14, 155–167.
- Research Report Group of Chinese Education and Human Resources. (2003). *From a big country of population to a big country of human resources*. Beijing: Advanced Education Press.
- Rigdon, E. (1997). *The problem of identification*. Retrieved March 22, 2007, from <http://www2.gsu.edu/~mkteer/identifi.html>
- Ryan, R. & Connell, J. (1989). Perceived locus of causality and internalization. *Journal of Personality and Social Psychology*, 57, 749–761.
- Ryan, R. & Deci, E. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, & well-being. *American Psychologist*, 55, 68–78.
- Schmitt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assessment*, 8, 350–353.
- Self-Regulation Questionnaires. (2003). Retrieved February 7, 2003, from <http://www.psych.rochester.edu/SDT/measures/selfreg.html>
- Sheldon, K., Elliot, A., Ryan, R., Chirkov, V., Kim, Y., Wu, C., Demir, M., & Sun, Z. (2004). Self-concordance and subjective well-being in four cultures. *Journal of Cross-Cultural Psychology*, 35, 209–223.
- Sheldon, K., Ryan, R., Rawsthorne, L., & Ilardi, B. (1997). Trait self and true self: Cross-role variation in the big-five personality traits and its relations with psychological authenticity and subjective well-being. *Journal of Personality and Social Psychology*, 73, 1380–1393.
- Sivan, A. (2006). Personal and social trends in leisure participation: The case of Hong Kong. *Ninth World Leisure Congress Abstracts: Oral and Poster Presentations* (pp. 43). Hangzhou, China: World Leisure.
- Stebbins, R. A. (1992). *Amateurs, professionals, and serious leisure*. Montreal, PQ: McGill-Queen's University Press.
- Steiger, J. H. (1980). Test for comparing elements of a correlation matrix. *Psychological Bulletin*, 87, 245–251.
- Stodolska, M. & Yi-Kook, J. (2005). Ethnicity, immigration, and constraints. In E. L. Jackson (Ed.), *Constraints to leisure* (pp. 53–73). State College, PA: Venture.
- Tabachnick, B. & Fidell, L. (2006). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson.
- Tafarodi, R., Lo, C., Yamaguchi, S., Lee, W., & Katsura, H. (2004). The inner self in three countries. *Journal of Cross-Cultural Psychology*, 35, 97–117.
- Torrubia, R., Avila, C., Molto, J., & Caseras, X. (2001). The sensitivity to punishment and sensitivity to reward questionnaire (SPSRQ) as a measure of Gray's anxiety and impulsivity dimensions. *Personality and Individual Differences*, 31, 837–862.
- Vallerand, R. (2000). Deci and Ryan's self-determination theory: A view from the hierarchical model of intrinsic and extrinsic motivation. *Psychological Inquiry*, 11, 312–318.
- van de Vijver, F. & Leung, K. (1997). *Methods and data analysis for cross-cultural research*. Thousand Oaks, CA: Sage.
- Vansteenkiste, M., Zhou, M., Lens, W., & Soenens, B. (2005). Experiences of autonomy and control among Chinese learners: Vitalizing or immobilizing? *Journal of Educational Psychology*, 97, 468–483.
- Visser, P., Krosnick, J., & Lavrakas, P. (2000). Survey research. In H. Reis & C. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 223–252). Cambridge, UK: Cambridge University Press.
- Walker, G. J., Courneya, K. S., & Deng, J. (2006). Ethnicity, gender, and the theory of planned behavior: The case of playing the lottery. *Journal of Leisure Research*, 38, 224–248.
- Walker, G. J., & Deng, J. (2003). Comparing leisure as a subjective experience with the Chinese experience of *rù mí*. *Leisure/Loisir*, 28, 245–276.
- Walker, G. J., Deng, J., & Chapman, R. (2007). Leisure attitudes: A follow-up study comparing Canadians, Chinese in Canada, and Mainland Chinese. *World Leisure Journal*, 49, 207–215.
- Walker, G. J., Deng, J., & Dieser, R. (2005). Culture, self-construal, and leisure theory and practice. *Journal of Leisure Research*, 37, 77–99.
- Walker, G. J., Dieser, R., & Deng, J. (2005). "Whoa versus go!" A rejoinder to Mannell and Caldwell. *Journal of Leisure Research*, 37, 117–127.

- Walker, G. J., Jackson, E. L., & Deng, J. (2007). Culture and leisure constraints: A comparison of Canadian and Mainland Chinese university students. *Journal of Leisure Research, 39*, 567–590.
- Walker, G. J., Jackson, E. L., & Deng, J. (2008). The role of self-construal as an intervening variable between culture and leisure constraints: A comparison of Canadian and Mainland Chinese university students. *Journal of Leisure Research, 40*, 90–109.
- Wang, J. & Stringer, A. (2000). Impact of Taoism on Chinese leisure. *World Leisure, 3*, 33–41.
- Weissinger, E. & Bandalos, D. (1995). Development, reliability and validity of a scale to measure intrinsic motivation in leisure. *Journal of Leisure Research, 27*, 379–400.
- Williams, E. (1959). The comparison of regression variables. *Journal of the Royal Statistical Society (Series B), 21*, 396–399.
- Wong, N. & Ahuvia, A. (1998). Personal taste and family face: Luxury consumption in Confucian and Western societies. *Psychology & Marketing, 15*, 423–441.