

Measurement Properties and Invariance of Negotiation with Outdoor Recreation
Constraints -- A Cross-culture Study Between United States and Chinese University
Students

A THESIS
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA
BY

Tian Guo

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE

Advised by Ingrid E. Schneider

September, 2012

Acknowledgements

This research was based on a master thesis. We thank the anonymous reviewers and Dr. Sonja Wilhelm Stanis and Dr. Rosita Albert for their comments on the draft, Dr. Carla Barbieri, Dr. Li Cheng, Dr, Kelly Bricker, Dr. Mark Morgan, Dr. William Norman, Shen Aiping, and Xuan Ma for disseminating the questionnaires, Clara Schreiber and Andrew Oftedal for editing the draft, and the study participants for their interest and trust.

Abstract

Leisure constraints negotiation research investigates the resources, strategies, and processes people use to deal with leisure constraints. This study examined the measurement of negotiation, including its latent structure, measurement invariance, and cross-cultural applicability, using data from US and Chinese university student samples. A modified second-order negotiation measurement model fit the data acceptably and tau-equivalence was found with most negotiation factors, except cognitive strategies. Equal form emerged across the US and the Chinese samples; however, equal indicator loadings were not found across the two groups. Findings and implications are discussed with future studies suggested.

Key word: negotiation; cross culture; second-order model; tau-equivalence; measurement invariance

Table of Contents

List of Tables	iv
List of Figures	v
Introduction.....	1
Literature review	3
Leisure Constraint Negotiation Theory and Models.....	3
Negotiation Strategies and Factors	5
Negotiation Cross Cultures	7
Negotiation Measurement Properties and Equivalence Cross Cultures	9
Rationale and Purpose.....	13
Methods.....	13
Participant and Procedure	13
Measures	16
Semantic Equivalence of the Questionnaire	17
Data analysis	18
Results.....	21
Sample Profile.....	21
Negotiation Measurement Model	22
Discussion.....	36
Limitation of This Study.....	41
Future Studies	42
Reference	47

List of Tables

TABLE 1. MEASUREMENT MODELS OF NEGOTIATION	13
TABLE 2. RESEARCH OBJECTIVES AND MODELS TESTED	15
TABLE 3. DESCRIPTIONS AND RELIABILITY OF NEGOTIATION STRATEGIES ITEMS WITHIN THE US SAMPLE	23
TABLE 4. DESCRIPTIONS AND RELIABILITY OF NEGOTIATION STRATEGIES ITEMS WITHIN THE CHINESE SAMPLE	24
TABLE 5. NEGOTIATION MODELS FIT INDICES: PRESUMED SIX-FACTOR MODEL, 1ST SERIES MODIFIED FIVE-FACTOR, 2ND SERIES MODIFIED FOUR-FACTOR MODEL, 3RD SERIES MODIFIED FIVE-FACTOR MODEL, AND SECOND-ORDER MODELS.	32
TABLE 6. MODELS WITH TAU-EQUIVALENCE	33
TABLE 7. TESTS OF MEASUREMENT INVARIANCE OF NEGOTIATION TO OUTDOOR RECREATION IN US AND CHINESE UNIVERSITY STUDENTS	34

List of Figures

FIGURE 1. MODIFIED FIVE-FACTOR NEGOTIATION MODEL WITH STANDARDIZED ESTIMATES WITH THE US SAMPLE. 44

FIGURE 2. SECOND-ORDER FIVE-FACTOR MODEL WITH STANDARDIZED ESTIMATES WITH THE US SAMPLE. 45

FIGURE 3. SECOND-ORDER FIVE-FACTOR MODEL WITH STANDARDIZED ESTIMATES WITH THE CHINESE SAMPLE. 46

Introduction

Outdoor recreation can benefit participants in various ways, including connections with nature, involvement in physical activities, and escape from daily stress (Driver, Brown, and Peterson, 1991). Although the National Survey on Recreation and Environment (NSRE) reported a 4.4% increase in the total number of the US population who participated in 60 selected outdoor recreation activities from 1999 to 2008 (Cordell, Betz, and Green, 2008), there has been concern about declines in both people's interest and participation in nature-based recreation. For select traditional outdoor recreation activities, evidence from the NSRE (Cordell et al.) reveals a participation decline. The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR, 2006) revealed a similar decline in fishing participation of 12% from 1996 to 2006, and a 4% decline in hunting. Examining why people do not participate or stop participating in certain outdoor recreation activities helps public and private recreation providers to understand current and potential customers' leisure choices, identify neglected services or facilities, design targeted marketing materials, and involve more and diverse people in their programs.

Leisure constraints research addresses why people do not participate or stop participating in certain outdoor recreation activities as it aims to "investigate factors assumed by researchers and/or perceived or experienced by individuals to limit the formation of leisure preferences and/or to inhibit or prohibit participation and enjoyment in leisure" (Jackson, 2000, p. 62). Early leisure constraints studies equated constraints with "barriers" so that the outcome of constraints was assumed to be nonparticipation (Jackson, 2005). For example, limited money or time to recreate outdoors, few people to

recreate with, or fear of the outdoors would prevent participation in outdoor recreation. An alternative view of constraints emerged in the mid-1980s and continued developing through the early 1990s (Jackson, 2005). This alternative view highlights people's effort in negotiating constraints and proposes that constraints modify leisure involvement. Jackson, Crawford, and Godbey (1993) elaborated on the concept of negotiation and proposed that "participation is dependent not only on the absence of constraints (though this may be true for some people) but on negotiation through them. Negotiation may modify rather than foreclose participation" (p. 4). Since 2000, negotiation research has built and tested models of negotiation based on this theory (Hubbard and Mannell, 2001; Jackson, 2005). Several empirical studies support this proposition and reveal that encounters of constraints trigger people's effort to negotiate (Hubbard and Mannell, 2001; Loucks-Atkinson and Mannell, 2007).

Despite the expanding pool of negotiation strategies and increasing interest with negotiation models, the measurement of negotiation is immature, manifested by the inconsistency across studies and the lack of systematic scrutiny. Arguably, the understanding of associations among negotiation strategies and factors is insufficient. Further, the generalizability of negotiation is rarely tested across cultures, in contrast with a growing need for cross-culture research. As Hubbard and Mannell (2001) suggest, "further research with other populations and activities will be needed to determine the universality of the processes identified" (p.161). China is one of the non-Western countries that experiences a flourish of leisure industry and yet still has low participation in active outdoor recreation (Jim and Chen, 2009). Similar to the US, interest is increasing to promote outdoor recreation in China. However, little is known on factors

influencing outdoor recreation participation. To fill this gap, researchers need to examine the validity of negotiation measurement which developed in the context of Western population and language.

Therefore, this study explored the measurement of negotiation between cultures in the context of outdoor recreation toward the establishment of a valid negotiation measurement. The aim of this study is twofold: 1) to develop a negotiation measurement in the context of the outdoor recreation in the US by testing existing measurement models, and 2) to test the measurement of negotiation across two cultural groups, US and Chinese university students.

Literature review

Leisure Constraint Negotiation Theory and Models

Leisure constraints research approaches individuals' leisure choices and behavior as negative factors that limit or prohibit leisure participation and affect leisure preference. Empirical studies reveal that constraints influence leisure preference, participation, and experience (Alexandris, Grouios, Tsorbatzoudis, and Bliatsou, 2001; Hubbard and Mannell, 2001; Tsai and Coleman, 2009; Godbey, Crawford, and Shen, 2010). As of 2012, leisure constraint studies recognize that constraints do not prevent leisure participation, but inhibit or alter leisure preference and participation as people are able to negotiate the constraints. The term negotiation describes the process, resources, and strategies used to “navigate, react, respond” to leisure constraints, and to “create, fulfill, challenge, reframe, or revise” their leisure involvement (Little, 2007, p. 406).

Jackson et al. (1993) formalized and extended ideas of negotiation previously implicit in earlier studies. Their propositions hypothesized how motivation and self-efficacy could influence negotiation, and how negotiation associates with constraints and participation. Building on these propositions, Hubbard and Mannell (2001) proposed and tested five alternative negotiation models and found negotiation and constraints influenced participation independently and constraint increased negotiation efforts, while negotiation did not reduce the perception of constraints. Five studies since then found similar results across various leisure activities (Loucks-Atkinson and Mannell 2007; Wilhelm Stanis, Schneider, and Russell, 2009; Lee and Scott, 2009; Jun and Kyle, 2011; Hung and Petrick, 2012). However, two studies found contradictory results (Son, Mowen, and Kerstetter, 2008; White, 2008). Given the measurement of negotiation in these studies differs in both number and hierarchy of negotiation factors, conclusive evidence about the relationships among motivation, constraints, and negotiation remains absent.

Recently, negotiation theory was advanced by Schneider and Wilhelm Stanis (2007) who introduced coping and stress theory to the constraints literature. Coping, originally studied with stress in psychology, was defined as “constantly changing cognitive and behavioral efforts to manage a troubled person-environment relationship” (Lazarus and Folkman, 1984, p. 141). As proposed by Schneider and Wilhelm Stanis, the negotiation of leisure constraints shares similarities with coping with stress. In this sense, coping with outdoor recreation constraints can be defined as people constantly changing cognitive and behavioral efforts to manage a troubled recreation-environment relationship (Schneider and Wilhelm Stanis). Jackson and Rucks (1995) distinguished behavioral and cognitive negotiation strategies, similar to coping categorizations. Still,

negotiation studies emphasize behavioral strategies, with little attention to cognitive strategies (Wilhelm Stanis, et al. 2009). Wilhelm Stanis applied coping theories to expand negotiation measurement by adding cognitive strategies and found satisfactory measurement validity and reliability, and their findings supported Hubbard and Mannell's constraint-effect-mitigation model.

Negotiation Strategies and Factors

Empirical studies identify negotiation strategies in various leisure activity contexts and among various groups (Livengood and Sodolska, 2004; Alexandris, Kouthouris, and Gigolos, 2007; Koca, Henderson, Asci, and Bulgu, 2009). These strategies have been grouped into categories such as time management, financial management, interpersonal coordination, and skill acquisition (Jackson and Rucks, 1995; Hubbard and Mannell, 2001). These categories are operationalized as negotiation factors in quantitative studies (Loucks-Atkinson and Mannell, 2007; White, 2008; Wilhelm Stanis et al. 2009; Lee and Scott, 2009; Jun and Kyle, 2011; Hung and Petrick, 2012) and the association between these categories and negotiation is supported by three studies to date (White, 2008; Hung and Petrick, 2012; Ma et al. 2012). Since Jackson et al. (1993) put forth six negotiation propositions, the pool of negotiation strategies and resources has expanded but how these individual strategies and factors associate with each other and perform as components of negotiation is unclear. One example is that it is unclear that how many factors exist within negotiation. Existing work divides negotiation into different numbers of categories. For example, Lee and Scott proposed and tested a three-factor structure of negotiation, including structural, interpersonal, and intrapersonal,

while other studies divided structural negotiation into several specific categories, such as time management, financial management, and skill acquisition (Loucks-Atkinson and Mannell; Son, et al. 2008; Wilhelm Stanis, 2008; Jun and Kyle).

Another example of limited understanding of the inner structure of negotiation is the inconsistent relationship between negotiation strategies and factors. Sometimes, factors were named differently, but included similar items. More often, the same named factor consists of a different number of items. For example, Loucks-Atkinson and Mannell (2007) measured “changing leisure aspirations” with five items including “I sometimes substitute another more convenient activity for a preferred one”, “I change the location of where I participate”, “I participate at times when facilities aren’t overcrowded”, “I reduce the difficulty of activity”, and “I change the type of physically active leisure activities that I participate in”; while White (2008) used two items to measure “changing leisure aspiration:”, “go to areas that are less crowded”, and “go to areas where I feel comfortable.” Ma et al. (2012) also measured “changing leisure aspiration” with items like “I try to select activities that I am good at”, “I purposely participate in activities not competitive”, “I try to select activity where I can avoid conflict.” Wilhelm Stanis et al. (2009) incorporated items from coping scales with the first three items in Loucks-Atkinson’s changing leisure aspiration factor, developing a new negotiation factor named “issue management.” The added two items were “I talk to outdoor recreation sites personnel” and “I express anger to the person who caused a conflict situation.” The number of factors in negotiation measurement also differs cross studies, ranging from three to six (White; Jun and Kyle, 2012). Further investigation is

needed to establish consensus with the number of factors and what factor each negotiation strategy should belong to.

Negotiation Cross Cultures

Beyond understanding the general nature of negotiation, understanding if and how negotiation performs in different cultures is of interest given its role in determining the generalizability of negotiation and expanding understanding of leisure phenomenon.

Chick (2000) describes cross-cultural comparative research as research that “deals with two or more societies that possess relatively distinct cultures (though they may share many cultural traits, such as each having patrilineal descent and each have some form of wrestling)” (p.3). Culture is widely discussed but difficult to define. Chick also summarized that many definitions refer to culture as knowledge, beliefs, attitudes, and values. The difficulty in defining culture emanates from determining if and how a culture is distinct from other cultures. Intuitively, it is easy to make the assumption that one culture is different from another (e.g. Chinese culture is different from US culture). However, systematic assessments to compare cultures exist. Perhaps best known is Hofstede’s work on culture comparison. Most recently, Hofstede (2010) reported on findings of comparing nations in five culture dimensions, including that the US and China are different mainly in power distance, individualism, and long-term orientation. However, Hofstede’s finding raised a question about geographic scope in culture studies: do political boundaries (nations) also present cultural boundaries? Chick has suggested that large countries such as the US and China may contain numerous cultural entities. Therefore, it is reasonable to ask whether to use nation as the unit for culture.

Valentine, Allison and Schneider(1999) distinguished cross-national study and cross-cultural study, where cross-national research focuses predominantly on cross-societal patterns with specific territorial borders, while cross-cultural research can include subcultures within a particular society. Minkov and Hufsted (2012) argued that nation is a good unit of studying cultures as they found more homogeneity of culture in countries rather than heterogeneity. Given the difficulty in sampling culture by subtle differences between cultures, using nations as the unit of culture seems both realistic and valid.

Empirically, calls for cross-cultural studies exist in leisure studies (Valentine et al., 1999; Chick, 2000; Mannell 2005; Walker, Jackson, and Deng, 2007). This interest in cross-cultural studies in leisure partially comes from the development of cross-cultural studies in other social science and humanity areas that have supported leisure studies theoretically or methodologically. Walker, et al.'s work on Canadian university students and Chinese university students is an example of cross-cultural leisure constraints study. Notably, they found Chinese university students were more intra- and interpersonally constrained, while Canadian students were more structurally constrained. Cross-culture research in leisure is of value. Mannell (2005) asked “whether or not the phenomenon of leisure as conceptualized in western leisure studies is a culturally universal psychological state and as its best when characterized by a high level of freedom of choice and intrinsic motivation?”(p.101) Since Mannell asked this question, various constructs related to the phenomenon of leisure have been examined cross culturally, including the meaning of leisure (Walker and Wang, 2008), leisure preferences (Jian, Sandnes, Huang, and Hagen, 2010), leisure constraint (Walker, et al. 2007), and leisure behaviors (Tasi, 2005; Xu, Morgan, and Song, 2009), but limited research investigates negotiation cross culturally.

Limited research describes negotiation in non-Western cultures. Rare examples include Livengood and Stodolska (2004) and Koca, Henderson, Asci, and Bulgu (2009) who identified negotiation strategies used by Muslim immigrants living in the US after 9/11 and Turkish women, respectively, using qualitative methods. These studies indicated negotiation is a general human construct that exists across cultures; however, culture influences the construct. For example, Koca et al. found when low-income Turkish women faced the constraints of family obligation, they did not mention any strategies related to the division of labor in the family, because the gender roles defined by their traditional cultures expect woman to take all family obligations. Some quantitative research also studied negotiation in different culture contexts. Ma et al. (2012) studied the interaction between negotiation, physical wellbeing, and leisure time physical activity participation among college students from Taiwan, whose culture is expected to be different from the US. They found that their measurement model of negotiation developed from a study conducted in the US did not fit the data. Subsequently, they dropped items and identified correlated measurement errors to improve the model quality. The aforementioned studies, especially the model modification performed in Ma et al.'s study, indicates that the latent structure of negotiation possibly differs in various cultural environments, which also calls for more cross-culture studies.

Negotiation Measurement Properties and Equivalence Cross Cultures

Development of negotiation study hinges on the quality of its measurement; however, opportunities to improve negotiation measurement with respect to its measurement properties and measurement invariance exist.

Based on negotiation theory, three studies (White, 2008; Hung and Petrick, 2012; Ma et al., 2012) measured negotiation using a second-order model (Table 1). Categories of negotiation such as time management and interpersonal coordination served as the first-order factors. Each first-order factor was measured with several indicators. Then, these first-order factors in turn serve as indicators for a second-order factor of negotiation. Negotiation as the broader factor correlates with other constructs such as constraint, motivation, and participation. This model fits the data testing it; however, tests of second-order model can be more exhaustive. Brown (2006) suggested that researchers should compare the second-order model with the first-order model using nested χ^2 test in addition to the overall model fit test. However, existing studies have not reported nested χ^2 test results, leading to questions about the model.

Other approaches to negotiation reduce the second-order model into the first-order model by using mean scores as indicators of negotiation. For example, Hubbard and Mannell (2001) calculated the means of items belonging to same categories as negotiation's subscale score and then used subscale scores as indicators to negotiation. Thus, the data and parameters that needed to be estimated in structural equation model were largely reduced, which improved model parsimony. This data reduction procedure is commonly performed among negotiation studies and other social science studies; however, the underlying assumptions of this procedure are rarely discussed and tested.

The first assumption of second-order models is that the subscales not only are correlated with each other, but also serve as indicators loading on negotiation. Without testing the second-order model, the use of means might disguise problems with the measurement, such as poor items, correlated measurement errors, or misspecified factor

correlations. The second assumption of second-order models is that strategies belonging to the same categories load on the latent factor equally. This is an important concept in confirmatory factor analysis (CFA), named tau-equivalence. A factor without tau-equivalence among its indicators indicates some strategies carry more characteristics of the latent variable than others. Therefore, using mean score would not fully present the different weights among strategies. As such, researchers need to verify the model's tau-equivalence to justify the use of means to reduce data and simplify the model.

Growing interests in cross-culture study require negotiation measurement that is not only well-behaved, but also equivalent across cultures and/or languages. Budruk (2010) summarized four components of equivalence: functional, normative, semantic, and conceptual equivalence. Functional equivalence is an initial and necessary condition of cross-cultural research where the construct under investigation has the same function in cultures. Normative equivalence refers to the social norm that could influence people's responses in the data collection process, which would thus determine proper methodology. Semantic equivalence refers to words and phrases in one language having matching meaning in another, so the meanings in one language are preserved in the translation process. Conceptual equivalence means the concept operationalized in one culture and developed in one language exists in the same form in another culture. Methodologically, the same form means the factorial structure of the construct, the relationship between items and factors are the same cross languages. The functional and normative equivalence are checked and established in the research design, methodology selection, and research instrument development stages. The semantic equivalence is established in the stage of the translation of instrument from one language to another one. In practice,

the conceptual equivalence is often of most interest, which requires the measurement across cultures.

The test of measurement invariance refers to techniques to establish conceptual equivalence. Measurement invariance refers to “the degree to which measurements conducted under different conditions exhibit similar psychometric properties” (Casper, Bocarro, Kanters, and Floyd, 2011, p. 129). Psychometric properties include factorial structure, factor loadings, and variance as well as covariance among factors.

Measurement invariance test tells whether the differences in scores cross groups indicate true differences rather than a change in the factor structure or loading. Stepwise multiple-group CFA is the most common method to test measurement invariance (Brown, 2006), which is yet rarely conducted in the study of negotiation. Multiple-group CFA includes a sequence of progressively stricter statistical tests that build on each other (Budruk, 2010). Only when one form of invariance is satisfied can analysis proceed. Brown suggested typifying invariance using equal form, equal factor loading, and equal intercept, each of which has more constraints than the previous one. Equal form is the loosest invariance, only requiring the same dimensions or factorial structures. Equal factor loading requires strategies load on factors in the same way across groups and equal intercept requires that when the latent factors do not perform, the effect of strategies are the same cross groups. Special attention should be given to the term of equal form: here it has a strict meaning compared to its appearance in the definition of conceptual equivalence where the term of form encompassing equal form, equal factor loading, and equal intercept.

Rationale and Purpose

To address the opportunities in negotiation studies, this study assessed the measurement of negotiation with outdoor recreation constraints across US and Chinese university students. This study aimed to identify valid indicators and a robust latent construct structure of negotiation that was consistent across cultures. This research includes four specific objectives, to:

1. Examine the relationship between negotiation strategies and factors,
2. Develop a negotiation measurement model,
3. Test the tau-equivalence with the second-order model to verify common data reduce practice in negotiation study, and
4. Test measurement invariance with the second-order model using a US university student sample and a Chinese university student sample.

For each research objective, one or several models developed from theory or previous studies were tested using CFA (Table 1 and 2).

Methods

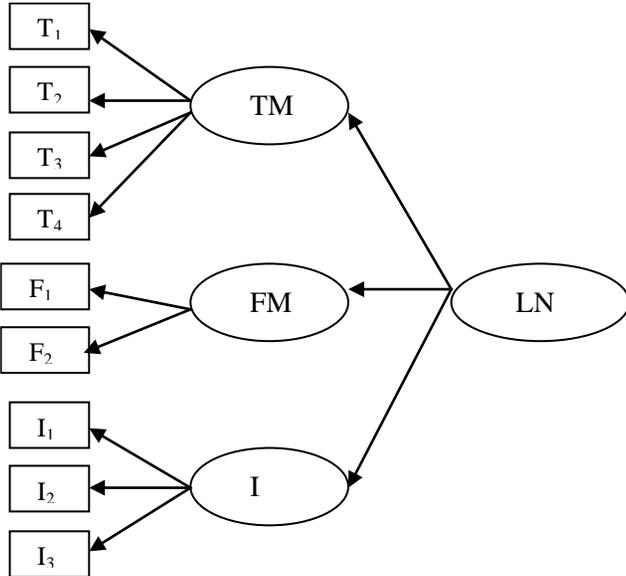
Participant and Procedure

Data were obtained from two convenience samples: 1) US university students and 2) Chinese university students. Professors and instructors from four universities in the US and one university in China agreed to assist with data collection by distributing questionnaires in their spring 2012 classes. Students completed the questionnaire during class. Participating universities in the US represented most regions in the country, while only Sichuan University participated in China. Sichuan University is one of largest,

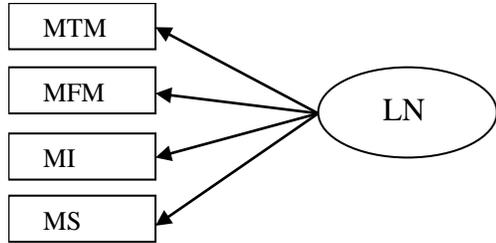
comprehensive universities in China and has diverse students from various regions, which may help to limit the bias of including only one Chinese university. Students in the US universities completed the English questionnaire and students in the Chinese universities completed the Chinese questionnaire. The US sample did not include international students from China.

In total, 694 questionnaires were obtained: 157 from the US student sample and 537 from the Chinese student sample. The unequal sample size was addressed in measurement invariance test. One English questionnaire and three Chinese questionnaires were unusable due to more than 40% missing data in the negotiation section or obvious mindless responses, such as the same answers for all questions with careless handwriting. Therefore, 690 questionnaires were deemed usable.

Table 1. Measurement models of negotiation

Examples of measure models	Author (Year)	Area	Categories/factors of negotiation	Model Modification
<p data-bbox="107 402 346 427">Second-order model:</p>  <p data-bbox="107 1112 724 1372">Note. LN means latent negotiation; TM means time management; FM means financial management; I means interpersonal coordination subscale; T₁, T₂, T₃, T₄ are items of time management; F₁ F₂ are items of Financial measurement; I₁, I₂, I₃ are items of interpersonal coordination.</p>	White (2008)	Outdoor recreation	changing interpersonal relations, changing leisure aspirations, improve finances	None
	Hung and Petrick (2012)	Cruising travel	Improving finances, change interpersonal relations, time management	Merging negotiation dimensions
	Ma, Tan, and Ma (2012)	Physical activity	time management, interpersonal coordination, improve finances, physical fitness, acquisition of skill, change leisure aspirations (removed in modified model)	Twelve items were excluded from future study including stay late or get up early to get more time and measurement errors were correlated.

Measurement model using mean scores of subscales as indicator to negation



Note. LN = latent negotiation; MTM = mean score of time management subscale; MFM = mean score of financial management subscale; MI = mean score of interpersonal coordination subscale; MS = mean score of skill acquisition subscale.

Hubbard and Mannell (2001)	Activities in fitness center	time management; skill acquisition; interpersonal coordination, and financial resources	None
Son, Mowen, and Kersteter (2008)	Free time physical activities	time management, skill acquisition, interpersonal coordination, and financial	Correlated measurement error, constraint and negotiation
Wilhelm Stanis, Russell, and Schneider (2009)	Physical activities in park	time management, skill acquisition, interpersonal coordination, financial management, cognitive, issue management	None
Lee and Scott (2009)	Celebrity fans behavior	intrapersonal constraint negotiation, interpersonal constraint negotiation, and structural constraint negotiation	None
Jun and Kyle (2011)	Recreational golfer	social, health, skill, confidence, cost, weather, time and commitment	None

Table 2. Research objectives and models tested

Research objectives	Models tested
Examine the relationship between negotiation strategies and factors.	First order model with negotiation strategies and factors
Develop a negotiation measurement model.	Second-order model, developed by adding negotiation as the higher order factor on the first order model fitted in the first step
Test tau equivalence of the measurement	Second-order models with indicators in the same subscale constrained to equally load on the factor.
Test measurement invariance	Multiple group second-order model with the US sample and the Chinese sample

Measures

A questionnaire was developed primarily based on the work of Wilhelm Stanis et al. (2009) and Folkman and Lazarus (1988), but tailored for outdoor recreation. The questionnaire consisted of several sections, including constraints to outdoor recreation participation and negotiation of these constraints, which this paper focuses on.

Negotiation was measured with 24 items that presumably loaded on six factors: financial management, cognitive strategies, time management, interpersonal coordination, substitution, and skill acquisition (Table 3). Most items were used from Wilhelm Stanis et al.'s (2009) negotiation measurement which included cognitive items from coping theories, and were tested using reliability analysis and CFA. Four items in Wilhelm Stanis et al.'s negotiation measurement were dropped given the anticipated confusion among Chinese respondents due to their close link to the specific constraint of on-site conflict, including "I try to ignore others bothering me," "I make light of conflict situation," "I talk to park personnel," and "I express anger to the person who caused a conflict situation." Two cognitive items from Folkman and Lazarus (1988) were added: "I feel there will be other opportunities in the future" and "I persuade myself it's OK that I cannot participate." Terminology was also modified to fit the outdoor recreation context. For example, a statement "I think about how important physical activity is" was adjusted to "I think about how important this outdoor recreation activity is." The factor "issue management" was renamed as "substitution" because the three indicators remaining in this factor related more to substitution.

Semantic Equivalence of the Questionnaire

The survey was conducted in the US and China. As such, the English questionnaire was translated into Chinese with appropriate measures taken for face and conceptual equivalence, as well as cross-cultural validity. Following Budruk's (2010) recommendations, semantic equivalence of the questionnaire need to be tested in multilingual studies. Thus, items were first checked and confirmed they measured behaviors that are also common in China, such as planning ahead, saving money, and prioritizing activities. Further, the instrument included short sentences in active voice to optimize item translatability (Vande Vijver and Leung, 1997). Then, items were translated into simplified Chinese. The translation fully considered the cultural differences between the US and China. For example, the conceptual equivalence of park includes a broader range of settings in Chinese, compared to the literal translation of park. A translation-back-translation procedure was applied as another way to establish semantic equivalence. Specifically, the questionnaire was translated from English into simplified Chinese by the researcher, and then a team of Chinese fluent individuals—who had not seen the original English-language questionnaire—translated it back to English. The original English questionnaire and the English questionnaire back-translated from the Chinese questionnaire were compared. The negotiation section did not have much difference between back translated version and the original English version, while other sections were revised to ensure the translation was accurate and there was language equivalence. For example, in the constraint section, the first item “I don't like to be physically active” was back translated as “I don't like sports.” The word used to translate “physical activity” were thus changed to better reflect “physical activity.” Finally, a

Chinese graduate student with a degree in English and experienced in translation was consulted. Several edits of terminology and sentence structure were made on the Chinese questionnaire to make it more readable to Chinese respondents.

Data analysis

Data were entered, cleaned, and analyzed using SPSS 19 and Amos 20.0.

Descriptive analysis was conducted separately within the US sample and the Chinese sample, providing means, standard deviations to describe the samples and variables of interest. Initially, normality of each negotiation item was assessed and their skewness and kurtosis were acceptable (Tabachnick and Fidell, 2001). There was little missing data. Reliability analysis on the six negotiation factors was conducted.

The analysis started with fitting a six-factor model to examine items and latent factors. The proposed model was similar to Hubbard and Mannell (2001), Loucks-Atkinson and Mannell (2007), and Wilhelm Stanis et al. (2009). Items within each factor with the largest variance were chosen as the marker indicator to define the variance of latent variables. Raw data was directly utilized in the analysis. All measurement error was presumed to be uncorrelated and all factors were freely correlated to each other. However, modifications were performed given the poor fit indices of the proposed model.

Model modification is not an uncommon practice in social science (MacCallum, 1986). Specification searches describe the process of problem identification and model modification. MacCallum suggested the sequential process of specification searches starts with the evaluation of diagnostic information provided by the software, including significance of parameters, residuals, and modification index. After problems were

identified, a revised model addressing these problems is fit and the goodness-of-fit is evaluated again. Commonly, more than one modification is needed to reach satisfactory results. The process of specification searches is data-driven, thus MacCallum (1986) and Brown (2006) suggested special attention be paid to the specification searches process. In this study, three series of modifications achieved acceptable model fit. A final five-factor model with 15 items was chosen as the baseline model for subsequent analysis.

In the second step, a second-order model with these five factors as first-order factors and negotiation as a second-order factor was fitted, similar to the procedures used by White (2008), Hung and Petrick (2012), and Ma et al. (2012). Similarly, the item with largest variance of each factor was used as a marker indicator. Like the first model all measurement error was presumed to be uncorrelated and all factors were freely correlated with each other. The magnitude and pattern of correlations among factors were examined. The overall goodness fit of the second-order model was examined. The size of the higher-order factor loadings was also evaluated to determine the acceptability of the second-order model. The nested χ^2 test was conducted to determine whether the specification produces a significant degradation in fit relative to the first-order solution. The model with fewer constraints is conceptualized as the parent model. For example, in the first-order model, all factors are specified as correlated with each other freely. The model with more constraints is conceptualized as the nested model. For example, in the second-order model, first order factors are constrained to load on the second-order factor. The χ^2 difference resulted from χ^2 of nested model minus χ^2 of parent model indicate whether adding constraints to the model increase the discrepancy between the proposed model and the data. If the difference in χ^2 is significant, the nested model degrades from the parent

model significantly. Researchers can thus suggest the nested model is not a better solution than the parent model.

In the third step, whether indicators equally loaded on the corresponding factor was tested. As aforementioned, this step tested the tau-equivalence of the model. Factor loadings of indicators under the same factor were constrained to be equal. The test was conducted one factor a time. Although five factors remained in the model, substitution only had two indicators and one was used as the marker indicator and tau-equivalence checks were not possible. So tau-equivalent models were fitted within other four factors, financial management, cognitive strategies, interpersonal coordination, and skill acquisition. Each tau-equivalent model was compared to the congeneric model, the model fitted in previous step with no cross-loading items and correlated measurement errors. A nested χ^2 test was conducted again. If χ^2 significantly increases, the tau-equivalent model is not a better solution compared to congeneric model.

The final step assessed measurement invariance with equal form, equal factor loading, equal indicator intercepts in a stepwise manner. First, the baseline model was fitted in the first stage in both the U.S. sample and the Chinese samples. All overall goodness-fit statistics needed to be acceptable and all freely estimated factor loadings needed to be statistically significantly to move to the next stage of comparison. Then, the simultaneous analysis of equal form was conducted and the goodness fit of the model was assessed. This step determines whether number of factors and pattern of indicators and factor loading are identical in different groups. A model with specification of equal factor loadings across the two samples was then fitted. If the equal factor loading test passes, whether the intercepts of indicators are equal cross groups would be tested. Besides

overall goodness fit for each model, nested χ^2 was used to determine whether the added specification would significantly degrade the model. If not degraded, the model with more specification can stand and a level of equality exists between groups.

Several model goodness-of-fit indices were selected to evaluate the models, including χ^2 , χ^2/df , the root mean square error of approximation (RMSEA), comparative fit index (CFI), and the Tucker-Lewis index (TLI). Ideally, χ^2 should be nonsignificant to show that the model fits the sample matrix perfectly. However, χ^2 is often affected by sample size and therefore the adjusted χ^2/df , was used (Brown, 2006). A χ^2/df less than 3 is recommended (White, 2008). Using χ^2 is also limited by its hypothesis that the estimated matrix strictly equals the sample matrix, and indices with parsimony correction and comparative fit indices are thus used. Browne and Cudeck (1993) propose, as a rule of thumb, that RMSEA values less than .08 suggest adequate model fit. CFI and TLI values in the range of .90 to .95 may be indicative of acceptable model fit (Bentler, 1990). However, indices will be considered with caution given that issues surrounding goodness-of-fit indices are still debated and these indices are differentially affected by sample size, model complexity, and estimated method (Brown, 2006). For example, TLI and RESEA tend to falsely reject models when N is small (Hu and Bentler, 1999).

Results

Sample Profile

For the US sample (n=154), respondents were, on average, aged 23 years old and largely white (95.9%). The majority were male (53.2%), upper-level students (seniors, 46.1% and juniors 30.5%), and of urban backgrounds (small city, 30.1%; medium city,

29.5%; metropolitan 16.4%). About 56% of respondents majored in the field of recreation, park, and tourism. The Chinese sample (n=534) was slightly younger with an average age of 21 and largely Han (87.8%). The majority were female (65.8%), and lower-level students (freshman, 3.8%; sophomore, 31.3%), and of mixed geographical background (agricultural farm or ranch, 21.2%; small city, 20.0%). About 41% majored in the field of recreation, park, and tourism.

Negotiation Measurement Model

Step 1: Testing the relationship between negotiation strategies and factors.

The US data were analyzed using Amos 20.0 and maximum likelihood minimization function. The overall goodness-of-fit indices showed that the proposed six-factor negotiation model did not fit the data ($\chi^2=506.16$, $\chi^2/df =2.35$, CFI=.679, TLI=.622, RESEA=.094; Table 5). The parameter

Table 3. Descriptions and reliability of negotiation strategies items within the US sample

Coping strategies categories and items	M	SD	Skewness	Kurtosis	Coefficient α
<i>Financial Management</i>					.587
F ₁ I try to live within my means	3.60	.90	-.768	.816	.405
F ₂ I save money	3.46	1.00	-.480	-.340	.438
F ₃ I try to budget my money	3.19	1.07	-.384	-.383	.485
F ₄ I improvise with the equipment I have	3.18	1.06	-.427	-.285	.687
<i>Cognitive strategies</i>					.496
C ₁ I think about how important outdoor recreation is	3.55	1.11	-.531	-.376	.419
C ₂ I ignore what people think of me	3.62	.96	-.260	-.270	.408
C ₃ I avoid allowing things to get to me	3.56	.88	-.239	.198	.362
C ₄ I feel there will be other opportunities in the future	3.63	.844	-.200	.145	.397
C ₅ I persuade myself it's OK that I cannot participate	2.49	.97	.232	-.223	.584
<i>Time Management</i>					.446
T ₁ I try to plan ahead	3.73	.972	-.509	.060	.344
T ₂ I try to prioritize my outdoor recreation activities	3.27	1.03	-.352	-.153	.304
T ₃ I get up earlier or stay up later to have more time	3.53	1.04	-.418	-.266	.291
T ₄ I cut short my activity sessions	2.62	.81	.042	.601	.512
<i>Interpersonal Coordination</i>					.779
I ₁ I recreate with people like myself	3.59	.894	-.281	-.123	.680
I ₂ I try to find people with similar interests	3.69	.839	-.504	.111	.698
I ₃ I try to find people to recreate with	3.31	.90	-.075	-.190	.774
I ₄ I arrange rides with friends	3.18	1.03	-.302	-.265	.748
<i>Substitution</i>					.402
SB ₁ I change the location of where I recreate	3.10	.88	-.146	.124	.212
SB ₂ I recreate at times when outdoor recreation sites are less busy	3.37	.97	-.226	-.055	.155
SB ₃ I substitute a more convenient activity for a preferred one	3.06	.91	-.182	.455	.508
<i>Skill Acquisition</i>					.560
S ₁ I try to improve my skills	3.55	.894	-.138	.061	.415
S ₂ I learn new activities	3.34	.81	-.075	-.190	.345
S ₃ I ask for help with required skills	2.59	.89	-.222	-.654	.603
P I use protective devices (e.g. pepper spray)	1.91	1.07	.943	-.024	-

Note. Negotiation strategies measured on a scale of 1=Never, 2=Rarely, 3=Sometimes, 4=Regularly, 5=Very Often. P was dropped in the analysis due to the low quality of normality.

Table 4. Descriptions and reliability of negotiation strategies items within the Chinese sample

Coping strategies categories and items	M	SD	Kurtosis	Skewness	Coefficient α
<i>Financial Management</i>					.666
F ₁ I try to live within my means	2.98	.976	-.171	-.561	.555
F ₂ I save money	3.10	1.04	-.087	-.576	.546
F ₃ I try to budget my money	2.74	.98	-.044	-.581	.589
F ₄ I improvise with the equipment I have	2.63	1.14	.123	-.978	.697
<i>Cognitive</i>					.564
C ₁ I think about how important outdoor recreation is	2.78	1.02	-.103	-.651	.519
C ₂ I ignore what people think of me	2.67	1.16	.217	-.869	.552
C ₃ I avoid allowing things to get to me	3.15	.956	-.063	-.353	.469
C ₄ I feel there will be other opportunities in the future	3.20	1.04	-.319	-.533	.481
C ₅ I persuade myself it's OK that I cannot participate	2.79	1.06	.072	-.662	.518
<i>Time Management</i>					.448
T ₁ I try to plan ahead	3.01	1.08	-.013	-.752	.301
T ₂ I try to prioritize my outdoor recreation activities	2.53	1.03	.182	-.672	.405
T ₃ I get up earlier or stay up later to have more time	2.41	1.13	.381	-.746	.426
T ₄ I cut short my activity sessions	2.60	.907	.207	-.233	.376
<i>Interpersonal Coordination</i>					.662
I ₁ I recreate with people like myself	2.71	1.01	.176	-.490	.507
I ₂ I try to find people with similar interests	3.27	.979	-.108	-.592	.608
I ₃ I try to find people to recreate with	2.99	.912	-.109	-.178	.557
I ₄ I arrange rides with friends	1.86	1.06	.965	-.126	.691
<i>Issue Management (Substitution)</i>					.517
SB ₁ I change the location of where I recreate	2.68	.902	.335	-.055	.343
SB ₂ I recreate at times when outdoor recreation sites are less busy	3.13	1.02	-.190	-.456	.357
SB ₃ I substitute a more convenient activity for a preferred one	2.96	.999	-.038	-.575	.539
<i>Skill Acquisition</i>					.713
S ₁ I try to improve my skills	2.91	.953	-.181	-.482	.609
S ₂ I learn new activities	2.77	.84	.036	-.139	.611
S ₃ I ask for help with required skills	2.35	.88	.357	-.109	.650
P I use protective devices (e.g. pepper spray)	1.39	.832	2.24	4.43	-

Note. Negotiation strategies will be measured on a scale of 1=Never, 2=Rarely, 3=Sometimes, 4=Regularly, 5=Very Often. P was dropped in the analysis due to the low quality of normality.

estimates of the solution were evaluated and it revealed that some indicators did not significantly load on factors, further the factor correlation matrix was not positive, which also indicates poor fitting of the model. Specification searches were performed to identify programs and determine modifications. Three series of modifications found acceptable model fitting.

The first specification search started with item examination. The measurement was purified by eliminating indicators with nonsignificant loadings or variance explained by factors was less than .05. As discussed before, items were dropped one at a time and in different combinations, with fit indices and factor loadings examined each time to determine necessary elimination. Three items were removed on this basis: “C₅: I persuade myself it’s OK that I cannot participate”, “SB₃: I substitute a more convenient activity for a preferred one”, and “F₄: I improvise with equipment I have.” The second source of misfit checked was if indicators loaded on wrong factors and cross-loaded. Modification indices were used to identify problematic indicators and factors. Items were fixed not correlating to other factors except the factor they belong to; however, modification indices show if item “T₂: I try to prioritize my outdoor recreation activities” correlated with cognitive strategies, the χ^2 would decrease by more than 4 (the approximate critical value of χ^2 at $p < .05$, 1df). This finding indicates the cross loading of an indicator. Two solutions were tested and compared: one cross loading the item to factors and the other reloading the item on a different factor. Reloading this item on cognitive strategies resulted in better fit indices and it also was conceptually acceptable because respondents may consider prioritizing from the cognitive perspective rather than the arrangement of activities. Factor correlations were then checked. The correlation between substitution

and time management exceeded 1.0, which may result from possible high linear dependencies of factors or misspecification of models. After eliminating the factor of substitution, the model improved. In the fourth step, error correlations were examined using modification indices. In the proposed model, all error correlations were fixed to zero. The modification indices show how much χ^2 would decrease if the measurement errors of items were correlated. Two pairs of items were found likely to have the problem of error correlations: “S₂: I learn new activity” and “I₃: I try to find people to recreate with”; and the other pair is “F₁: I try to live within my means” and “S₁: I try to improve my skills.” Items in each pair were adjacent in the instrument, which may explain the correlated measurement error. Finally, the factor loadings of items of the modified model were checked again with the modified model. Items “C₂: I ignore what people think of me” and “C₄: I feel there will be other opportunities in the future” were found with the factor loading lower than .4. Thus, these two items were dropped from the final model.

With the first series of modifications, the model fit reach an acceptable level ($\chi^2=118.31$, $\chi^2/df=1.77$, CFI=.899, TLI=.863, RESEA=.071; Table 4). The specification searches could stop here; however, in this modified model most indicators of time management were not significantly loaded on the factor, indicating opportunities for model improvement by eliminating the time management factor from the model. Nevertheless, removing the time factor contradicts Hubbard and Mannell (2001) and Wilhelm Stanis et al.’s (2009) findings. Unfortunately, it is difficult to determine whether this finding regarding time management conceptually reveals a tenuous correlation between time management and other negotiation factors or if it is just a function of sampling error. To fully explore the possibilities, a second series of modification was

performed: T₁ was moved to financial management and time management was dropped. The model goodness-of-fit was slightly improved from the first model modifications ($\chi^2=93.41$, $\chi^2/df =1.95$, CFI=.905, TLI=.869, RESEA=.079; Table 4).

A third attempt of model modification was performed to eliminate the influence of the order of changes on the specification search process. After changing the order of addressed problems in the specification searches process, a third series of modifications was developed. This time, the order of misfit problem changed into factor correlations, items, and correlated errors. In the end, item T₂ was moved to cognitive strategies; the time management factor was eliminated, several other items were also eliminated. As discussed before, theoretically time management should be included in the measurement model. Thus, this study tries to keep time management in the final model. But failed attempts revealed that time management had to be eliminated otherwise the model would not achieve acceptable fitness to the data. Further replication study could inform how time correlates with other negotiation factors. In sum, compared to the first and second series of modification, fewer items were dropped. Items F₁, C₄, SB₁, SB₂ were kept in the third attempt. The third series of modifications resulted in similar model goodness-of-fit results ($\chi^2=131.99$, $\chi^2/df =1.65$, CFI=.907, TLI=.877, RESEA=.065, Table 5), but had fewer modifications to the proposed model and therefore that model was selected to conduct the second-order analysis.

In sum, the final modified model dropped four items due to poor factor loading (“F₄: I improvise with the equipment I have”, “C₂: I ignore what people think of me”, “C₅: I persuade myself it’s OK that I cannot participate”, “SB₃: I substitute a more convenient activity for a preferred one”), reloaded one item to different factors due to misspecified

item-factor correlation (T_2), dropped one factor due to misspecified factor correlation (Time management), and dropped one item due to correlated errors (“ I_3 : I try to find people with similar interests”). Considering the small sample size ($n=155$), this modified model has acceptable fit (Figure 1).

Step 2: Develop negotiation measurement by testing the second-order model.

A second-order model was fit by adding negotiation as a second-order factor to the pretested five-factor mode. The second-order model had an acceptable model fit ($\chi^2=154.63$, $\chi^2/df=1.82$, $CFI=.875$, $TLI=.845$, $RESEA=.073$; Table 4; Figure 2). In this study, χ^2 increased by 22.64 with a df reduced by 5 compared to the first order model. The degradation to the model by fitting a second-order model was significant (the critical value of χ^2 at df of 5 is 11.05 at .05 level, this $\chi^2_{\text{differ}}(5)$ resulted from adding second-order portion exceeded the critical value). Brown (2006) suggested conducting a nested χ^2 to determine whether adding the second-order portion degrades the model significantly but did not specify if researchers should reject the model when significant model degradation occurs. Especially in this study, the second-order model is supported by previous research and the theory. The goodness-of-fit was acceptable, and all first-order factors loaded on negotiation significantly. As such, it seemed reasonable to accept this second-order model, and use it in the subsequent analyses.

Step 3: Test tau-equivalence with the second-order model. Tau-equivalence was tested to verify the common practice of data reduction. Models with tau-equivalence were specified by constraining the factor loadings on the same factor to be equal. The factor substitution only had two items, one of which was served as the marker indicator. Only one item would be freely loaded on substitution. Thus, tau-equivalence was not

tested for substitution. Four tau-equivalence models were assessed using overall model fit indices and nested tests. The results suggest models with tau-equivalence fit the data acceptably, and the constraints of factor loadings did not significantly degrade from baseline model (Table 6), except for cognitive. Strategies loaded on cognitive were found not equally loaded on the factor. The uses of subscale mean score for financial management, interpersonal coordination, and skill acquisition was justified but not for cognitive strategies. Researchers need to be cautioned to use the subscale mean score of cognitive strategies as an indicator of negotiation.

Although tau-equivalence was found among the majority of factors, this study chose to use the second-order model in the following the measurement invariance test. The second-order model provides more details on how strategies and factors relate to each other and load on negotiation cross cultures, compared to the simplified using mean scores as negotiation indicators.

Step 4: Testing measurement invariance. Multiple group CFA was conducted to test the second-order negotiation model simultaneously with the US sample and the Chinese sample. Previous tests revealed the model is acceptable with the US sample. The model was also found with acceptable goodness-of-fit within the Chinese sample ($\chi^2=425.45$, $df=85$, $CFI=.853$, $TLI=.796$, $RESEA=.087$, Table 7, Figure 3). Then, the two models were fitted simultaneously using the stacking function of the software. Equal form was tested with specifying no constraints on model for each group. The solution provided an acceptable fit to the data ($\chi^2=580.20$, $df=170$, $CFI=.843$, $TLI=.807$, $RESEA=.059$). The next analysis evaluated whether the factor loadings of indicators belonging to the same factor were equivalent among US university students and Chinese

university students. Six equal factor-loading models were specified by constraining the factor loadings under one factor to be equal not among themselves but across the groups. The research found these models have similar goodness-of-fit with the equal form model; however, the nested χ^2 test showed equal factor-loading models significantly degrade fit relative to the equal form solution, except interpersonal coordination.

As unequal sample size may affect the multiple group comparison, 154 cases were randomly selected from the Chinese sample and the measure invariance was performed again. Similarly, equal form was found across the US university students and the Chinese university students again and the overall equal factor-loading test was not passed. Two tests found similar results. Since this level of equivalence did not pass the test, the equal indicator intercepts were not tested.

Table 5. Negotiation models fit indices: presumed six-factor model, 1st series modified five-factor, 2nd series modified four-factor model, 3rd series modified five-factor model, and second-order models.

Model Modification		χ^2	df	χ^2/df	χ^2_{diff}	Δdf	RMSEA	CFI	TLI
	Proposed six factors first-order model	506.16	215	2.35	-	-	.094	.679	.622
1 st series: five-factors	First-order	118.31	67	1.77	-	-	.071	.899	.863
Drop F ₄ , C ₂ , C ₄ , C ₅ , SB ₃ & I ₃ , F ₁									
+Move T ₂ to cognitive strategies	Second-order	137.88	72	1.92	19.74***	5	.077	.871	.836
+Drop substitution (SB1, SB2)									
2 nd Series: four factors	First-order	93.41	48	1.95	-	-	.079	.905	.869
Combination 1+drop time management (T ₃ , T ₄)	Second-order	93.975	50	1.88	.565	2	.076	.908	.878
+move T ₁ to financial									
3 rd Series: five factors	First-order	131.99	80	1.65	-	-	.065	.907	.877
Drop F ₄ , C ₂ , C ₅ , SB ₃ & I ₃	Second-order	154.63	85	1.82	22.64***	5	.073	.875	.845
+Move T ₂ to cognitive strategies									
+Drop Time management (T ₁ , T ₂ , T ₃)									

Note. * p<.05; ** p<.01, ***p<.005

Table 6. Models with tau-equivalence

Models	χ^2	df	χ^2 diff	Δ df	RMSEA	CFI	TLI
Congeneric model: factor loadings are free to vary	154.63	85	-	-	.073	.875	.845
Financial items loaded equally on financial management	155.42	86	0.79	1	.073	.875	.848
Cognitive items loaded equally on cognitive strategies	175.67	87	20.25***	2	.082	.841	.808
Interpersonal items loaded equally on interpersonal coordination	154.63	86	0	1	.072	.877	.849
Skill items loaded equally on skill management	157.97	86	3.34	1	.074	.871	.842

Note. * $p < .05$; ** $p < .01$, *** $p < .005$

Table 7. Tests of Measurement Invariance of Negotiation to outdoor recreation in US and Chinese university students

	Original samples							Sample size adjusted						
	US sample n=154; Chinese sample n=553							US sample n=154; Chinese sample n=154						
	χ^2	df	χ^2 diff	Δ df	RMSEA	CFI	TLI	χ^2	df	χ^2 diff	Δ df	RMSEA	CFI	TLI
Single Group Solutions														
US university students	154.63	85	-	-	.073	.875	.845	-	-	-	-	-	-	-
Chinese university students	425.45	85	-	-	.087	.853	.796	189.62	85	-	-	.090	.829	.788
Measurement Invariance														
Equal form	580.20	170	-	-	.059	.843	.807	344.24	170	-	-	.058	.851	.815
Equal factor loadings— financial management	596.10	172	15.9***	2	.060	.838	.802	360.34	172	16.1***	2	.060	.839	.803
Equal factor loadings— cognitive strategies	609.47	173	29.27***	3	.061	.833	.798	375.27	173	31.03***	3	.062	.827	.790
Equal factor loadings— interpersonal coordination	587.40	172	7.2*	2	.059	.841	.806	348.70	172	4.46	2	.058	.849	.815
Equal factor loadings— substitution	580.59	171	0.3	1	.059	.844	.808	344.87	171	0.63	1	.058	.851	.817
Equal factor loadings—	587.28	172	7.08*	2	.059	.841	.806	351.52	172	7.28*	2	.058	.846	.812

skill management

Equal factor loadings— 604.02 175 23.82*** 5 .060 .836 .803 370.97 175 26.73*** 5 .060 .832 .798

first order factors on

negotiation

Note. * $p < .05$; ** $p < .01$, *** $p < .005$

Discussion

This research investigated the latent structure of negotiation and explored negotiation across cultures. Survey data from US and Chinese university students revealed the proposed six-factor baseline model did not fit the data well, but a modified five-factor model fit the data and had minimally adequate goodness-of-fit. A second-order model had acceptable yet low goodness-of-fit measures, but degraded significantly from the first-order model. Still, the second-order model was tested considering its fit with theory. Tau-equivalence was found within all factors except cognitive strategies. The measurement invariance test found identical number of factors and second-order pattern of negotiation indicator-factor loadings across the US sample and the Chinese sample (equal form); however, indicators loaded on factors differently (equal factor loadings were not supported). As such, one can conclude, the meaning and structure of negotiation is different for the US and Chinese cultures.

The proposed six-factor model did not fit well with the US data of this study, in contrast to Wilhelm Stanis et al.'s (2009) research, whose negotiation measurement was modified for this study. The differences might be explained by the contexts of the studies, one in physical activity and the other one in outdoor recreation. For example, dropped items might be the negotiation strategies used less in the context of outdoor recreation than in physical activity. Another explanation is the different populations and sample sizes. In addition, the differences might uncover plausible parts of the measurement model previously unidentified, such as cross-loaded items and correlated measurement errors.

The time management factor was eliminated from the measurement model except item T₂ that was moved to cognitive factor. It is a little surprising that without moving this factor the model could not achieve acceptable fit, since both qualitative and quantitative research has identified time management as part of negotiation strategy (Scott, 1991; Jackson and Rucks, 1995; Hubbard and Mannell, 2001; Wilhelm-Stanis, 2009). An exception is Ma et al.'s (2012) study, which removed similar time management items to improve the measurement model of negotiation; however, their study was conducted with college students from Taiwan. As such, it is difficult to tell whether their modification on time management is due to the factor itself or due to population or culture differences.

The model modification procedure also indicates the need for better understanding of associations among negotiation strategies and factors. For example, the factor correlation matrix was not positive which may be due to misspecification of models. Specifically, the correlation between time management and cognitive strategies exceeded one, which indicated this pair of factor correlations may be the source of the problem. Existing negotiation theory cannot determine whether this situation should or should not happen, thus we cannot determine if the problematic factor correlation is caused by the sample, the measurement, or the factors themselves. It is likely that cognitive negotiation strongly affects behavior negotiation, time management in particular, which fits the description of the theory of planned behavior that attitude would determine behaviors. But why this study found this effect only on the relationship between cognitive negotiation and time management, but not between cognitive

negotiation and other behavioral factors (e.g. financial management, and interpersonal coordination), is unclear.

Second-order Model and Validity of Negotiation Measurement

Our findings indicate the fit of second-order model was not satisfactory, yet acceptable considering the sample size and the model complexity. The results are similar with three previous studies that tested the second-order model (White, 2008; Hung and Petrick, 2012; Ma, et al. 2012). However, these three studies did not conduct the nested χ^2 test. This study found adding negotiation as a higher-order portion of the model degraded the negotiation measurement model significantly from the first-order model. Although the second-order model was still used in further analysis, there is a possibility that relationships between negotiation categories and negotiation is more complicated than assumed. Statistically, CFA assumes that the only reason indicators correlate to each other is the latent factor (Brown, 2006). So in the second-order model, the only reason first-order factors (negotiation categories) correlate with each other is because of the second-order factor (negotiation). Our findings suggest that the second-order portion cannot totally explain the covariance between first-order factors. There might be other factors that account for covariance between negotiation categories, or that negotiation categories are too different in a meaningful way to be put under the name of negotiation. A challenge of negotiation measurement revealed by this finding is that this measurement may actually measure other constructs than negotiation, which are highly related to negotiation, but has different effects on leisure preference and participation. A suspect of the construct is facilitory strategy. In a related vein, Hubbard and Mannell (2001) and

Son et al. (2008) discuss facilitory strategies and negotiatory strategies. Facilitory strategies are the general resources or strategies people use to fulfill leisure participation while negotiatory strategies only exist when constraints are encountered. Hubbard and Mannell's statements may help to understand these two different but overlapping constructs: "it is important to distinguish between the facilitory and negotiatory functions of factors that influence leisure negotiation... factors are negotiatory only if they are triggered by encounters with constraint ... it is likely that many of the resources and strategies that are used to negotiate constraints are also general factors that can facilitate participation whether constraints are encountered or not" (p.159-160).

Theoretically, both facilitory factors and negotiatory factors would increase participation but they differ in their correlation with constraints. Facilitory factors could reduce the perceived constraints and constraints would increase negotiatory factors. It is reasonable to expect that if the two types of strategies are mixed together in measurement, the results of structural equation model would be inconsistent as shown in Son et al.'s replication of Hubbard and Mannell's study. Indeed Son et al. discussed their different findings using facilitory factors and negotiatory factors. They found that negotiation and constraints affect participation independently and there was no correlation between negotiation and constraints. Therefore they explained that the negotiation strategies measured in their study may be facilitory among the studied sample, rather than negotiatory. Son et al.'s research showed that negotiation measurement mixing facilitory factors and negotiatory factors may confound the significance of the relationships between negotiation, constraints, motivation, and participation, and would make the interpretation of results difficult. Unfortunately,

existing negotiation measurement including ours assumed that all factors are negotiatory. The use of mean score of subscales as indicators of negotiation might disguise this possible measurement problem if the measurement model was not pretested before the practice of simplification. Thus, the results of structural equation model may actually be a result of mixed facilitatory and negotiatory factors. Again, the model fitting results are influenced by our small sample size. Further analysis on how specific negotiation strategies correlated with specific constraints could tell the measurement used in this study measured other constructs than negotiation or it is a result of sampling.

Behavior Strategies and Cognitive Strategies

Testing tau-equivalence in the measurement model is important to justify using subscale mean score as indicators of negotiation. Study findings indicate strategies equally loaded on financial management, interpersonal coordination, and skill management. However, there is more diversity among cognitive strategies. This is conceptually acceptable considering that the stress and coping theory proposed five subscales of cognitive coping (Folkman and Lazarus, 1988). The richness and influence of cognitive strategies need more attention in future negotiation studies.

Negotiation Across Cultures

The cross-culture study of negotiation construct is the first in the study of negotiation, though previous negotiation studies in different cultures raised the need to compare negotiation structure simultaneously to establish the equivalence level (Lee and Scott, 2009; Ma et al., 2012). Current findings revealed negotiation has the same form

among US university students and Chinese university students, which means the number of factors and pattern of indicator-factor loading is identical across groups. However, indicators loaded differently on latent factor negotiation between the Chinese sample and the US sample. Therefore, comparing Chinese and US student negotiation by mean score of the measurement would not be appropriate. As the two groups are different in many factors of their social and cultural environments, this is not entirely surprising.

Specifically, Chinese respondents reported significantly less frequent participation in listed outdoor recreation activities (t -statistic=-20.63). More frequent participation in the US sample may suggest US students were more likely to have already successfully negotiated constraints, and more experiences in negotiation will affect negotiation. From a macro perspective, cultures may play an important role in deciding how people deal with inconsistent personal needs and environment relationship. Walker and Virden's (2005) leisure constraints model also suggests micro and macro factors would affect the coping process. What specific part of culture accounts for the differences is complex and was beyond the scope of this study. More support from qualitative research is needed to understand this area.

Limitation of This Study

Study limitations relate to the sampling and the specification level of the measurement. The present study is limited by the small size of the US sample ($n=154$), though the Chinese sample size is good ($n=534$). Although there is no consensus about sample size for CFA, our sample size of 154 is small compared to most negotiation studies. Thus, the results should be considered carefully. The convenience sample of

university student samples is also a limitation. A cluster effect of respondents coming from same school may also require further examination. As such, the results are not able to be generalized to general population. But as exploratory research, the use of student samples is enough to identify possible measurement issues with negotiation and the difference among those in the US and China.

Another limitation of the study is that negotiation is measured in the context of general outdoor recreation rather than a specific outdoor recreation activity. Attitude and behavior research suggest that the more specific the measurement is, the more accurate responses are (Eagly and Chaiken, 1993). Outdoor recreation activities encompassed a wide range of activities facing different levels of constraints, thus the negotiation may be different, though no studies have examined the difference among activities. In order to increase response rate and quality of response, some negotiation strategies were dropped in the questionnaire design stage because they are closely correlated with specific constraints and thus may not be applied to most respondents. The cross-sectional research design focusing on general negotiation behavior cannot reflect the process of negotiation being triggered by specific constraints.

Future Studies

Further studies are recommended to verify the findings of this research and to address the previously discussed research needs. Given the data-driven nature of model modification, MacCallum (1986) found that model modification risks mistakenly accepting false hypotheses. Therefore, he recommended a large sample size would be necessary to verify a modified model. Further studies with larger samples could help

answer whether the modifications only fit this data set, or they are actually reflect the broader population model.

In addition, this study provides a stepwise procedure to test measurement properties of negotiation and highlights potential problems hidden in the current measurements. Future study following these steps could help to develop more valid negotiation measures. More theoretical discussions and qualitative research on the latent structure of negotiation is also needed. Specifically, discussion on facilitatory and negotiatory factors relates to the question of whether our measurement measured negotiation or was mixed with other constructs. Looking at constraints-negotiation-concurrence would be a good start. Studying constraint negotiation as a dynamic transactional process or specified with outdoor recreation activity would also help because this research design is better at capturing negotiatory factors. Experiential sampling, demonstrated by Mannell and Zuzanek (1991), could be used as a transactional research design (Hubbard and Mannell, 2001).

Replication of the measurement invariance test across the US group and the Chinese group and future comparisons between other cultures, could further investigate whether those in the US and people from other cultures are different in the meaning and structure of negotiation. Additional cross-cultural and qualitative studies of negotiation will provide details in how and why different culture groups differ.

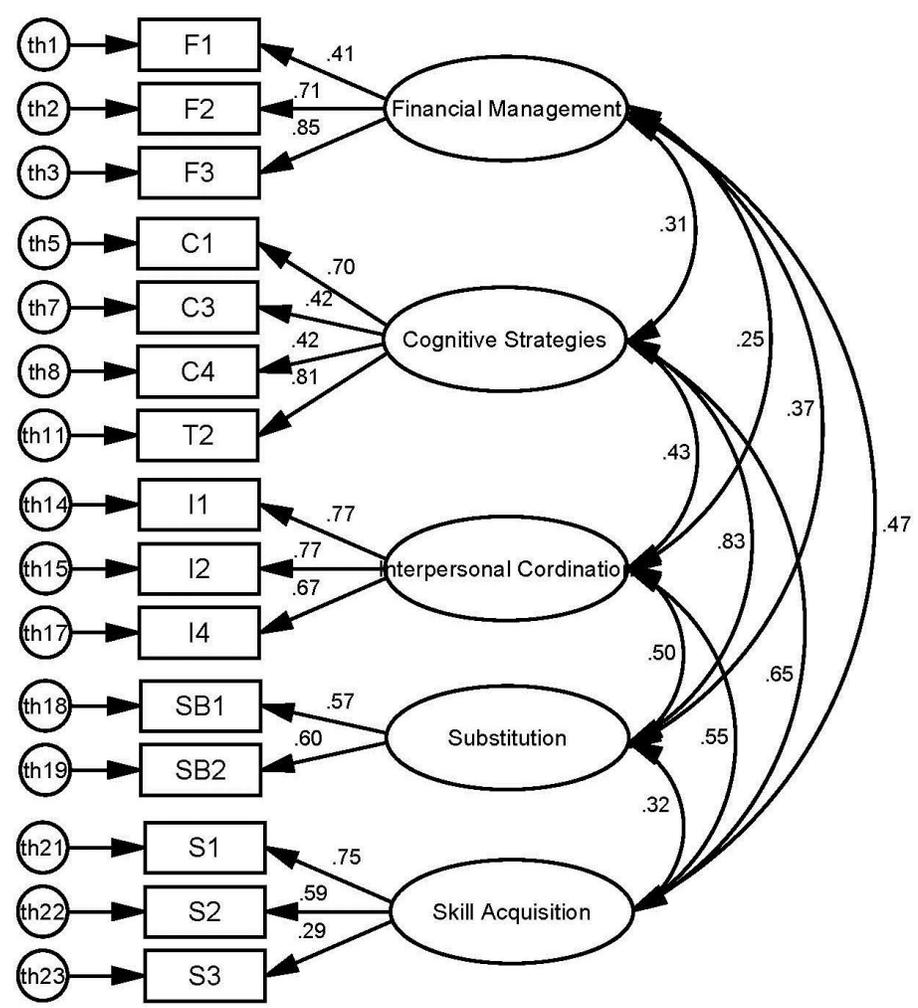


Figure 1. Modified five-factor negotiation model with standardized estimates with the US sample. F1: I try to live within my means. F2: I save money. F3: I try to budget my money. C1: I think about how important outdoor recreation is. C3: I avoid allowing things to get to me. C4 I feel there will be other opportunities in the future. T2: I try to try to prioritize my outdoor recreation activities. I1: I recreate with people like myself. I2: I try to find people with similar interests. I4: I arrange rides with friends. SB1: I change the location of where I recreate. SB2 I recreate at time s when outdoor recreation sites are less busy. S1: I try to improve my skills. S2 I learn new activities. S3 I ask for help with required skills. $\chi^2=131$, CFI=.907, TLI=.877, RESEA=.065

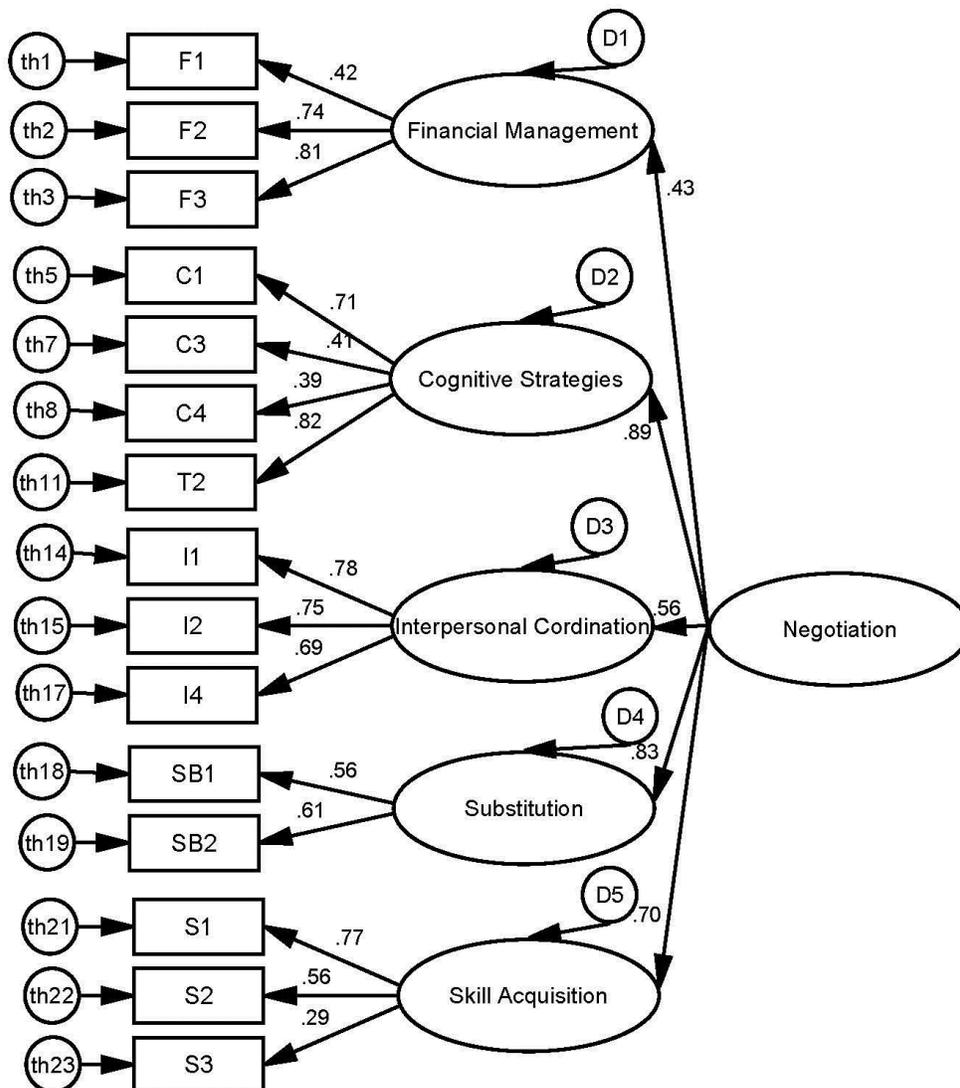


Figure 2. Second-order five-factor model with standardized estimates with the US sample. F2: I save money. F3: I try to budget my money. C1: I think about how important outdoor recreation is. C3: I avoid allowing things to get to me. C4 I feel there will be other opportunities in the future. T2: I try to try to prioritize my outdoor recreation activities. I1: I recreate with people like myself. I2: I try to find people with similar interests. I4: I arrange rides with friends. SB1: I change the location of where I recreate. SB2 I recreate at time s when outdoor recreation sites are less busy. S1: I try to improve my skills. S2 I learn new activities. S3 I ask for help with required skills. $\chi^2=131$, $\chi^2/df=1.82$, CFI=.875, TLI=.845, RESEA=.073

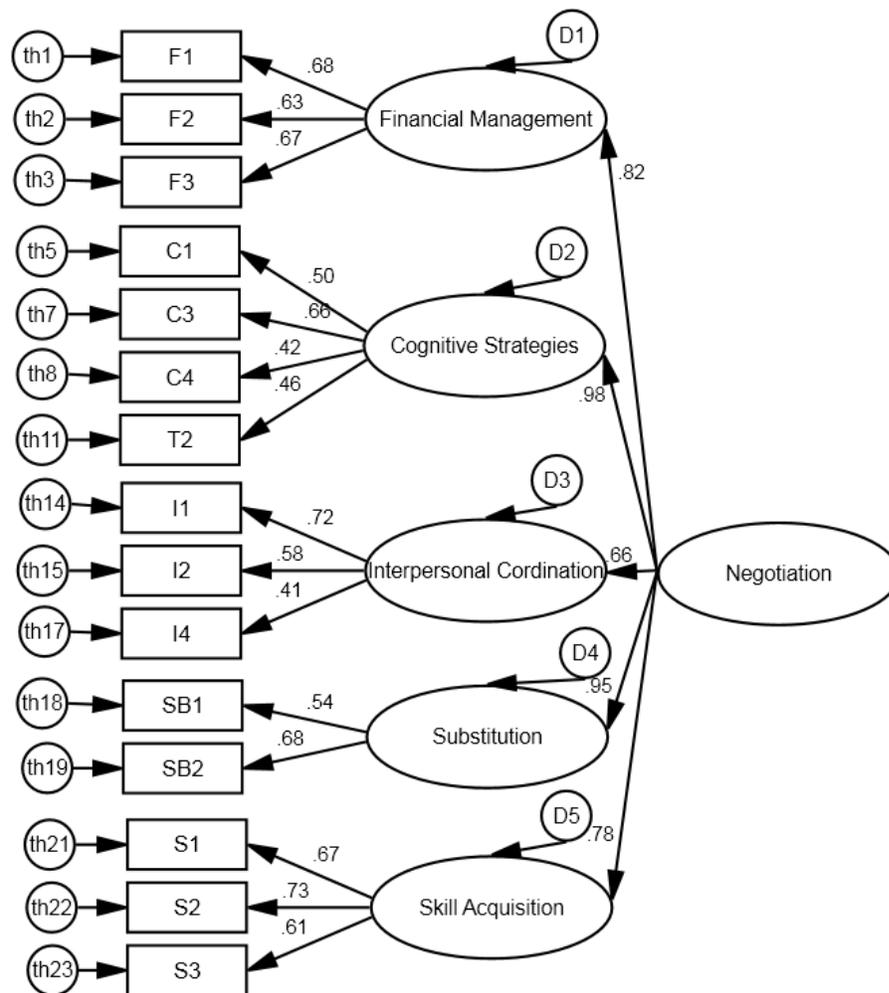


Figure 3. Second-order five-factor model with standardized estimates with the Chinese sample. F2: I save money. F3: I try to budget my money. C1: I think about how important outdoor recreation is. C3: I avoid allowing things to get to me. C4 I feel there will be other opportunities in the future. T2: I try to try to prioritize my outdoor recreation activities. I1: I recreate with people like myself. I2: I try to find people with similar interests. I4: I arrange rides with friends. SB1: I change the location of where I recreate. SB2 I recreate at time s when outdoor recreation sites are less busy. S1: I try to improve my skills. S2 I learn new activities. S3 I ask for help with required skills. $\chi^2=425$, CFI=.839, TLI=.803, RESEA=.060.

Reference

- Alexandris, K., Grouios, G., Tsorbatzoudis, H., & Bliatsou, A. (2001). Relationship between perceived constraints and commitment to recreational sport participation of university students in Greece. *International Journal of Sport Management*, 2, 282-296.
- Alexandris, K., Kouthouris, C., & Girgolas, G. (2007). Investigating the relationships among motivation, negotiation, and alpine skiing participation. *Journal of Leisure Research*, 39(4), 648-667.
- Bentler, P.M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, 107, 238-246.
- Brown, T.A. (2006). *Confirmatory Factor Analysis for Applied Research*. New York, NY: The Guilford Press.
- Browne, M.W., & Cudeck, R. (1993). Alternate ways of assessing model fit. In Bollen, K.A. & Long J.S. (Eds), *Testing Structural Equation Models* (p. 136-162). Newbury Park, CA: Sage.
- Budruk, M. (2010). Cross-language measurement equivalence of the place attachment scale: a multigroup confirmatory factor analysis approach. *Journal of Leisure Research*, 42(2), 25-42.
- Casper, J.M., Bocarro, J.N., Kanters, M.A., & Floyd, M.F. (2011). Measurement properties of constraints to sport participation: a psychometric examination with adolescents. *Leisure Sciences*, 33(2), 127-146.

- Chick, G. (2000). Editorial: opportunities for cross-cultural comparative research on leisure. *Leisure Science*, 22(2), 79-91.
- Cordell, H.K., Betz, C.J., & Green, G.T. (2008). Outdoor recreation activity trends: What's growing, what's slowing—a recreation research report in the IRIS series. Retrieved from The Internet Research Information Series (IRIS) website: <http://warnell.forestry.uga.edu/nrrt/nsre/irisreports.html>.
- Dillman, D.A., Smyth, J.D., & Christian, L.M. (2009). *Internet, Mail, and Mixed-mode Surveys: The Tailored Design Method*. 3rd ed. Hoboken, NJ: John Wiley & Sons, Inc.
- Driver, B.L., Brown, P.J., & Peterson, G.L. (1991). Research on leisure benefits: an introduction to this volume. In Driver, B.L., Brown, P.J., & Peterson, G.L. (Eds.). *Benefits of Leisure*. State College, PA: Venture Publishing, Inc.
- Eagly, A.H., & Chaiken, S. (1993). *The Psychology of Attitudes*. Orlando, FL: Harcourt Brace & Company.
- Folkman, S., & Lazarus, R.S. (1988). *Manual for the Ways of Coping Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
- Godbey, G., Crawford, D.W., & Shen, X.S. (2010). Assessing hierarchical leisure constraints theory after two decades. *Journal of Leisure Research*, 42 (1). 111-134.
- Hofsted, G. (2010). Human culture dimension comparison: China and the U.S. Retrieved from Geert Hofstede website: <http://geert-hofstede.com/china.html>.

- Hu, L., & Bentler, P.M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural Equation Modeling: Concepts, Issues, and Applications* (p. 76-99). Thousand Oaks, CA: Sage.
- Hubbard, J., & Mannell, R. (2001). Testing competing models of leisure constraint negotiation process in a corporate employee recreation setting. *Leisure Science*, 23, 145-163.
- Hung, K., & Petrick, J.F. (2012). Comparing constraints to cruising between cruisers and non-cruisers: a test of the constraint-effects-mitigation model. *Journal of Travel and Tourism Management*, 29(3), 242-262.
- Jackson, E.L. (2000). Will research on leisure constraints still be relevant in the twenty-first century? *Journal of Leisure Research*, 32, 62-68.
- Jackson, E.L. (2005). Leisure constraints research: overview of a developing theme in leisure studies. In Jackson, E.L. (Eds), *Constraints to Leisure* (pp. 3-19). State College, PA: Venture Publishing, Inc.
- Jackson, E.L., Crawford, D.W., & Godbey, G. (1993). Negotiation of leisure constraints. *Leisure Sciences*, 15, 1-11.
- Jackson, E.L. & Rucks, V.C. (1995). Negotiation of leisure constraints by junior-high and high-school students: an exploratory study. *Journal of Leisure Research*, 27(1), 85-105.
- Jian, H., Sandnes, F.E., Huang, Y.P., Huan, Y.M., & Hagen, S. (2010). Studies or leisure? A cross-cultural comparison of Taiwanese and Norwegian engineering students preferences for university life. *International Journal of Engineering Education*, 26(1), 227-235.

- Jun, J., & Kyle, G.T. (2011). Understanding the role of identity in the constraint negotiation process. *Leisure Sciences, 33*(4), 309-331.
- Koca, C., Henderson, K.A., Asci, F.H., & Bulgu, N. (2009). Constraints to leisure-time physical activity and negotiation strategies in Turkish women. *Journal of Leisure Research, 41*(2), 225-251.
- Lazarus, R., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York, NY: Springer Publishing Company, Inc.
- Lee, S., & Scott, D. (2009). The process of celebrity fan's constraint negotiation. *Journal of Leisure Research, 41*(2), 137-155.
- Little, D. (2007). Conceptions of leisure constraints negotiation; a response to the Schneider and Wilhelm Stanis Coping Model. *Leisure Sciences, 29*(4), 403-408.
- Livengood, J.S., & Stodolska, M. (2004). The effects of discrimination and constraints negotiation on leisure behavior of American Muslims in the post-September 11 America. *Journal of Leisure Research, 36*(2), 183-208.
- Loucks-Atkinson, A., & Mannell, R. (2007). Role of self-efficacy in the constraints negotiation process: the case of individuals with fibromyalgia syndrome. *Leisure Sciences, 29*(1), 19-36.
- Ma, S., Tan, Y., & Ma, S. (2012). Testing a structural model of psychological well-being, leisure negotiation, and leisure participation with Taiwanese college students. *Leisure Sciences, 34*(1), 55-71.
- MacCallum, R. (1986). Specification searches in covariance structure modeling. *Psychological Bulletin, 100*(1), 107-120.

- Mannell, R.C. (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(1), 100-105.
- Minkov, M., & Hofstede, G. (2012). Is national culture a meaningful concept? Cultural values delineate homogeneous national clusters of in-country regions. *Cross-Cultural Research*, 46(2), 133-159.
- Schneider, I.E., & Wilhelm Stanis, S. (2007). Coping: an alternative conceptualization for constraint negotiation and accommodation. *Leisure Science*, 29(4), 391-401.
- Son, J., Mowen, A., & Kerstetter, D. (2008). Testing alternative leisure constraint negotiation models: an extension of Hubbard and Mannell’s study. *Leisure Science*, 30(3), 198-216.
- Tabachnick, B.G., & Fidell, L.S. (2001). *Using Multivariate Statistics*. Boston, MA: Allyn and Bacon.
- Tsai, E.H. (2005). A cross-cultural study of the influence of perceived positive outcomes on participation in regular active recreation: Hong Kong and Australian university students. *Leisure Science*, 25(5), 385-404.
- Tsai, E.H., & Coleman, D.J. (2009). The influence of constraints and self-efficacies on participation in regular active recreation. *Leisure Sciences*, 31 (4), 364-383.
- U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. (2006). *National survey of fishing, hunting, and wildlife-associated recreation*. Retrieved from <http://www.census.gov/prod/2008pubs/fhw06-nat.pdf>.

- Valentine, K., Allison, M., & Schneider, I.E. (1999). The one-way mirror of leisure research: a need for cross-national social scientific perspectives. *Leisure Sciences*, 21(3), 241-246.
- Van de Vijver, Fons J.R., & Leung, K. (1997). *Methods and data analysis for cross-cultural research*. Thousand Oaks, CA: SAGE Publications, Inc.
- 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(4), 567-590.
- Walker, G.J., & Wang, X. (2008). The meaning of leisure for Chinese/Canadians. *Leisure Sciences*, 31(1), 1-18.
- Wilhelm Stanis, S.A., Schneider, I.E., & Russell, K.C. (2009). Leisure time physical activity of park visitors: retesting constraint models in adoption and maintenance stages. *Leisure Sciences*, 31(3), 287-304.
- Wilhelm Stanis, S.A. (2008). Constraints to leisure time physical activity on public lands: integrating stages of change (Doctoral dissertation). Retrieved from ProQuest Dissertations and Thesis database.
<http://login.ezproxy.lib.umn.edu/?url=http://search.proquest.com/docview/220002008?accountid=14586>
- White, D.D. (2008). A structural model of leisure constraints negotiation in outdoor recreation. *Leisure Sciences*, 30(4), 342-359.
- Xu, F., Morgan, M., & Song, P. (2009). Students travel behavior: A cross-cultural comparison of UK and China. *International Journal of Tourism Research*, 11, 255-268.