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Title	Leisure nostalgia: Scale development and validation
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Leisure Nostalgia: Scale Development and Validation

## Abstract

1  
2 Nostalgia is one of the most critical constructs influencing individuals' future behavioral  
3 intention. However, a measurement scale for nostalgia has not been widely explored and has not  
4 been developed in the context of leisure. Therefore, based on the classification of nostalgia, the  
5 study aimed to develop a scale to measure nostalgic leisure behavior. This study followed a  
6 rigorous scale development procedure to achieve adequate psychometric properties. The leisure  
7 nostalgia scale developed in this study contributes to a deeper understanding of nostalgia in  
8 leisure and expands extant knowledge by building a comprehensive conceptual framework in  
9 leisure research. In addition, a better understanding of leisure nostalgia allows researchers to  
10 extend this model with other leisure constructs and more effectively explain leisure participation  
11 in various populations. Based on the findings of this study, managers in the leisure industry can  
12 develop and implement effective strategies to appeal to leisure participants and promote business  
13 competitiveness.

14  
15 *Keywords:* Leisure nostalgia, classification of nostalgia, leisure participation, leisure experience,  
16 scale development

## Introduction

1  
2 Past experience and positive memory are integral psychological antecedents of  
3 individuals' behavior. They not only stimulate individuals' motivation but also increase  
4 behavioral intention (Cho, Ramshaw, & Norman, 2014; Kim, 2017). Particularly, previous  
5 experience filled with positive emotions tap people into their past, longing for past positive  
6 experiences. This phenomenon is highly related to the concept of nostalgia. Nostalgia is defined  
7 as a longing for yesterday and is "a positively toned evocation of a lived past in the context of  
8 some negative feeling toward present or impending circumstance" (Davis, 1979, p. 18). Davis  
9 (1979) stressed the positive effect of nostalgia and highlighted that "nostalgic feeling is almost  
10 never infused with those sentiments we commonly think of as negative—for example,  
11 unhappiness, frustration, despair, hate, shame, and abuse" (p. 14). Cho, Joo, and Chi (2019) also  
12 noted that nostalgia is strongly associated with positive experience in the past, and positive  
13 memories evoke nostalgic feelings.

14 In leisure settings, individuals may be exposed to a variety of environments, having  
15 diverse experiences and emotions. In addition, their positive emotions toward objects, such as  
16 people, places, experiences, and things could generate nostalgic feelings (Fairley, 2003).  
17 According to Lee, Dattilo, and Howard (1994), people have positive experiences and emotions  
18 (e.g., fun, enjoyment, social bonding, relaxation, introspection, creative expression, escaping,  
19 communion with nature, freedom of choice, physical stimulation, and intellectual cultivation)  
20 when they participate in leisure activities. Such positive experiences can be a vehicle for evoking  
21 nostalgic feelings (Cho et al., 2014; Fairley & Gammon, 2005).

22 To date, the concept of nostalgia has been studied in diverse fields, including psychology  
23 (e.g., Sedikides, Cheung, Wildschut, Hepper, Baldursson, & Pedersen, 2018; Zhou, Wildschut,

1 Sedikides, Chen, & Vingerhoets, 2012), sociology (e.g., Bennett, 2018; May, 2017), marketing  
2 (e.g., Marchegiani & Phau, 2011; Reisenwitz, Iyer, & Cutler, 2004), consumer behavior (Nam,  
3 Lee, Youn, & Kwon, 2016; Youn & Jin, 2017), and tourism (Cho et al., 2014; Robinson, 2015)  
4 as it is an essential construct to understanding individuals' future behavior. However, despite the  
5 importance of the concept of nostalgia in the field of leisure, only a few studies have examined  
6 nostalgia using a qualitative approach (e.g., Glover & Bates, 2006; Gvion, 2009). One possible  
7 reason for the dearth of nostalgia research using a quantitative approach would be that a  
8 measurement scale for nostalgia has not been developed in the context of leisure. A precise  
9 measurement tool of leisure nostalgia is important to move the scientific generalization of the  
10 domain forward. Therefore, the purpose of this study is to develop a Leisure Nostalgia Scale  
11 (LNS), based on Cho et al.'s (2014) classification of nostalgia. The classification of nostalgia is  
12 derived from nostalgic experience (Fairley, 2003; Fairley & Gammon 2005; Wilson, 2005),  
13 identity theory (Stets & Burke, 2000; Stryker, 1987), and social identity theory (Jenkins, 1996;  
14 Tajfel, 1981). The classification on two dimensions (i.e., the purpose of nostalgia and the  
15 structure of nostalgia) results in four factors: experience, socialization, personal identity, and  
16 group identity (see Table 1). Grounded in the four factors of the classification of nostalgia, the  
17 purpose of this study is to develop a sound reliable and valid scale to measure nostalgic leisure  
18 behavior and illustrate how nostalgia is important in individuals' leisure life.

19 <Insert Table 1 about here>

### 20 **Conceptual Framework of Nostalgia**

21 Over the years, the phenomenon of nostalgia has evolved, shifting the focus to its  
22 connection to a predominantly positive affect. According to Hofer (1934), in earlier years  
23 nostalgia was highly linked with abnormal symptoms, such as depression and extreme tiredness.

1 However, in recent times, the concept of nostalgia has broadened to define it as a longing. It is  
2 triggered when an individual's past is used as a point of reference to their current unfulfilled  
3 moment (Baker & Kennedy, 1994; Davis, 1979; Fairley & Gammon, 2005; Merchant & Ford,  
4 2008). Nostalgia is now more readily accepted without stigma. It has almost no negative  
5 memories connected to the past and if it does, the positive memories of the past seem to  
6 outweigh the negative memories, creating positive emotions. Although today nostalgia still  
7 somewhat signifies homesickness, it is more often used to describe a positive memory from the  
8 past that brings out positive feelings in an unfulfilling present (Davis, 1979; Fairley, 2003; Stern,  
9 1992). Some of the widely-accepted definitions of nostalgia commonly note these aspects as  
10 well.

11         Emphasizing the positive memory of the past, Stern (1992) defined nostalgia as “an  
12 emotional state in which an individual yearns for an idealized or sanitized version of an earlier  
13 time period” (p. 11). In line with this definition of nostalgia, Baker and Kennedy (1994) stated  
14 that “nostalgia is a sentimental or bittersweet yearning for an experience, product, or service  
15 from the past” (p. 169). Individuals who are unsatisfied with their present situation escape reality  
16 by experiencing nostalgia. Consequently, nostalgia brings back positive memories associated  
17 with objects or experiences (Baker & Kennedy, 1994; Fairley, 2003). Sedikides, Wildschut, and  
18 Baden (2004) supported this notion that strays from the older definition of homesickness. The  
19 positive emotions evoked by nostalgia come from one's memory. However, individuals possess  
20 the capability to tap into the positivity-inducing aspects of a memory selectively. Thus, nostalgia  
21 is a feeling that is generally positive with little or no negativity attached to it.

1 More recently, Cho et al. (2014) integrated the previous definitions of nostalgia and  
2 elucidated that an individual's nostalgia is mainly affected by positive experiences and feelings  
3 for the past, and an individual's current and future status can influence their level of nostalgia:

4 An individual longs for the past with strong positive feelings. Since one cannot return to  
5 the past, a person can have negative feelings. In addition, types of experience lead to  
6 different degrees of feelings of nostalgia, which is changed depending on one's current or  
7 the future status in reverse proportion. (p. 15-16)

8 As opposed to earlier beliefs of nostalgia carrying a stigma of negativity and uncertainty of the  
9 future, it is currently defined as the selective retrieval of the past that has positive emotions  
10 attached to it. However, nostalgia does not stop there. It comes with a broader and more complex  
11 notion. It is something that can be felt through first-hand experiences in the past or otherwise felt  
12 through vicarious experiences that include pictures, photos, articles, and movies (Goulding,  
13 2002; Stern, 1992). Therefore, the nature of nostalgia is understood as multi-dimensional. Some  
14 see nostalgia as a collective experience (Baker & Kennedy, 1994) while others see it as an  
15 existence strictly at an individual level (Batcho, 1998; Davis, 1979).

16 Recently, Cho et al. (2014) developed a classification of nostalgia with two dimensions:  
17 (a) purpose of nostalgia and (b) structure of nostalgia. The purpose of nostalgia consists of  
18 experience-based nostalgia and identity-based nostalgia, which was developed based on  
19 nostalgic experience (Fairley, 2003; Fairley & Gammon 2005; Wilson, 2005), identity theory  
20 (Stets & Burke, 2000; Stryker, 1987) and social identity theory (Jenkins, 1996; Tajfel, 1981).  
21 The structure of nostalgia is comprised of object-based nostalgia and interpersonal relationship-  
22 based nostalgia on the basis of the Fairley and Gammon's (2005) findings. That is, the

1 classification of nostalgia produces a two by two matrix and results in four factors, including  
2 experience, socialization, personal identity, and group identity (see Table 1).

3         The first component of the classification is nostalgia as experience. Individuals' nostalgic  
4 feelings can be retrieved from past personal experiences and sport/leisure objects, such as  
5 sport/leisure facilities, venues, and clubs. Fairley (2003) pointed out that nostalgia could also  
6 emerge through people, places and past experiences. Individuals might feel attachment to a  
7 specific athlete, team or venue. For example, when one experiences sentimental moments, such  
8 as a boy watching his first football match together with his father on his birthday, this experience  
9 can be unforgettable, and he might be attached to the football team or stadium. Wallendorf and  
10 Arnould (1988) discussed that attachment is an indication of a personal connection to a favorite  
11 object, and Schultz, Kleine, and Kernan (1989) defined attachment as a favorite association or  
12 possession derived from self-developmental tasks of integration, individualization, and temporal  
13 orientation or changes in the situation. Positive past memories related to favorite leisure objects  
14 can recall the nostalgic feeling. In addition, external stimuli (e.g., smell and music) may evoke  
15 nostalgic feelings, which may motivate a person to attend the sport events. Hence, the positive  
16 past memories associated with leisure objects can have an impact on behavioral intentions.

17         The second component of the classification is nostalgia as socialization. During  
18 recreation events, participants tend to make new friends, share information, and create networks  
19 among other participants. Socialization is an integral part of the leisure experience as the vast  
20 majority of people participate in leisure activities as part of a group at some point in time. This  
21 could be as part of a leisure participant group, a group of friends, or even getting to know other  
22 spectators at event venues. Fairley (2003) and Fairley and Gammon (2005) noted that

1 socialization plays an especially important role in evoking nostalgic feelings. That is, positive  
2 memories of building relationships and socializing with others can recall the nostalgic feeling.

3         The third component of the classification is nostalgia as personal identity. This  
4 component is conceptualized based on the identity theory (McCall & Simmons, 1966; Stryker,  
5 1987) and focuses on the self-description of individuals' attributes and role-related behaviors.  
6 For example, by participating in sporting events, the feeling of being a sport fan, having pride in  
7 being a sport fan, and having a sense of accomplishment as a sport fan can evoke and affect an  
8 individual's identity, which in turn may lead to nostalgic emotions. Wann and Branscombe  
9 (1993) affirmed that level of identification can influence the individual's emotions, and it could  
10 influence their nostalgic behavior (Cho et al., 2014; Davis, 1979).

11         The last component of the classification is nostalgia as group identity. It occurs when  
12 individuals long to return to being a member of a particular group, such as fans of the same team  
13 in the stadium singing their club songs or anthems. Such groups commonly distinguish  
14 themselves from others through unique characteristics or traits, such as having a particular outfit,  
15 accessories, behavior, or activities (Tajfel, 1981). Fairley and Gammon (2005) noted that  
16 "memories that an individual holds include both self and collective memories that reflect an  
17 individual's identification with, and belongingness to, a particular social group" (p. 183). In  
18 addition, an individual's attachment to a specific sport group and positive memories or  
19 experiences with the group increases group identity that can stimulate nostalgia. In sport tourism,  
20 large sporting events typically encourage the formation of group identities as teams play against  
21 one another, making group associations a key aspect of nostalgia (Cho et al., 2014). Individuals  
22 longing to re-live that group experience could be more likely to make a conscious decision in the  
23 future to attend a similar sporting event where such an experience is likely to occur again.

1 Overall, the four leisure nostalgia factors are specified in the relevant theories and  
2 concepts. For the development of better measures, this study follows the scale development  
3 procedure, recommended by Hinkin, Tracey, and Enz (1997). It consists of seven steps: (a) item  
4 generation, (b) content adequacy assessment, (c) questionnaire administration, (d) factor  
5 analysis, (e) internal consistency assessment, (f) construct validity, and (g) replication. For the  
6 effective implementation of the scale development procedures, a two-phase study design was  
7 carried out. Phase One (pilot study) included item generations for the four factors and  
8 purifications of the items through content adequacy assessment, factor analysis, and internal  
9 consistency assessment. Phase Two (main study) was designed to test the assessment of overall  
10 model fit and construct validity.

### 11 **Phase One: Pilot Test**

#### 12 **Research Participants**

13 For the pilot study, the targeted samples were university students who had nostalgic  
14 feelings toward their favorite leisure activities. A convenience sampling technique was used to  
15 collect data using a self-administered questionnaire. The data were collected through a face-to-  
16 face mode at a university in western Singapore. To identify a respondents' nostalgic level, this  
17 study used one question using a 7-point Likert scale (i.e., do you have any positive memories  
18 regarding your favorite leisure activity in the past?), as nostalgia is derived from positive  
19 memories. If any respondents answered that they did not have positive memories toward their  
20 favorite leisure, they would then be excluded from the data pool. However, the study found that  
21 all respondents answered they had positive memories toward their favorite leisure in the past ( $M$   
22 = 5.82).

1           The pilot test was based on 134 participants' responses. Of the 134 respondents, 69  
2 (51.5%) were male and 65 (48.5%) were female. Age was asked using an open-ended question,  
3 and the average age of the respondents was 24.25. As for marital status, single (97.8%) was the  
4 most common followed by married (2.2%). The most reported category of monthly household  
5 income was under S\$2,000 (35.8%), and 25.4% of respondents answered that their household  
6 income was S\$8,000 or higher.

### 7 **Scale Development**

8           Through a comprehensive literature review, the items of each factor were generated to  
9 prepare an initial questionnaire. The initial pool included 78 items representing the four nostalgia  
10 factors: experience (33 items), socialization (15 items), personal identity (14 items), and group  
11 identify (16 items). The items were developed and modified from the relevant literature in leisure  
12 participation (e.g., Ateca-Amestoy, Serrano-del-Rosal, & Vera-Toscano, 2008; Di Bona, 2000;  
13 Iwasaki & Havitz, 2004; Kivel, 2000; Kyle, Absher, Norman, Hammitt, & Jodice, 2007;  
14 Siegenthaler & O'Dell, 2000; Spiers & Walker, 2008), nostalgia (e.g., Cho et al., 2014; Cho, Lee,  
15 Moore, Norman, & Ramshaw, 2017; Fairley, 2003; Fairley & Gammon, 2005; Routledge, Arndt,  
16 Sedikides, & Wildschut, 2008; Stern, 1992), and fan motivation (e.g., Mahony, Nakazawa, Funk,  
17 James, & Gladden, 2002; Serafini & Adams, 2002; Trail & James, 2001).

18           After generating the initial item pool, this study employed the Q-sort technique and  
19 expert review to examine the face validity of the items. A Q-sort technique was utilized to  
20 determine the relevance of the items to their respective factors. Fifteen doctoral students and  
21 seven professors in the fields of leisure, tourism, sport psychology, and sport management  
22 conducted the Q-sort test, retaining items with over 80% consensus percentages (Brown, 1980).  
23 In addition, the second draft of the item pool was examined for content validity. The expert panel  
24 of scholars was asked to assess if the factors were adequately represented and to review each

1 item after generating the second item pool from the results of the Q-sort test. The panel of  
2 experts consisted of five professors, including three from leisure, one from tourism, and one  
3 from sport management. Out of 78 items in the initial pool, 39 items were removed through the  
4 Q-sort examination and content validity procedures. As a result, the remaining 39 items (refer to  
5 Table 2 for the individual item statements) were prepared for the pilot study to improve  
6 reliability and validity of the scale (Gay, 1996). All items were measured using a 7-Likert scale,  
7 anchored from strongly disagree (1) to strongly agree (7).

## 8 **Data Analysis**

9         The Statistical Package for the Social Science (SPSS 23.0) was employed to analyze the  
10 data, including descriptive statistics, exploratory factor analysis (EFA), and internal consistency  
11 tests. EFA is commonly utilized in the item purification stage as “it provides a tool for  
12 consolidating variables and for generating hypotheses about underlying processes” (Hair,  
13 Anderson, Tatham, & Black, 1998; Tabachnick & Fidell, 1989, p. 599). To decide on a number  
14 of factors, this study analyzed the scree plot and compared initial eigenvalues with random data  
15 eigenvalues found in a parallel analysis (Fabrigar, Wegener, MacCallum, & Strahan, 1999).  
16 After determining the number of factors, this study conducted EFA using the principal axis  
17 factoring procedure with oblique (promax) rotation, followed by internal consistency tests.

## 18 **Results**

19         Preliminary analysis showed that there were no outliers or missing values for any of the  
20 variables. Skewness and kurtosis values were used to evaluate the distribution of data. The  
21 skewness statistics (ranging from -1.35 to -0.31) and the kurtosis statistics (ranging from -0.71 to  
22 2.66) were close to the norm for normal distribution pattern (George & Mallery, 2010; see Table  
23 2 for more details).

1 <Insert Table 2 about here>

2 From the results of the scree plot and the comparison between the initial eigenvalues with  
3 random data eigenvalues, the decision to further compare two models (a four- and a five-factor  
4 model) was made. The result of the EFA fixed with four factors revealed five items (LE7, LE8,  
5 LE9, S5, and S9) with low factor loadings, whereas the result of the EFA fixed with five factors  
6 revealed five items (LE2, LE8, LE9, S5, and S9) with low factor loadings, according to the  
7 criterion of .50 (Hair et al., 1998). In terms of the dispositions of the problematic items from  
8 each model, there was not a great difference between the four-factor model and the five-factor  
9 model. However, the main difference is that 12 items out of the initial 15 experience items  
10 loaded into two separated factors, instead of one factor as would be expected for a four-factor  
11 model (see Table 3). After assessing the content of the items across the two separated factors,  
12 this study found that the items in the first separated factor were related to leisure experience,  
13 whereas the items in the second separated factor were more relevant to environment. Therefore,  
14 this study selected the five-factor model, and named two newly separated factors: leisure  
15 experience (LE1, 3, 4, 5 and 6) and environment (E1-E7).

16 The five items (LE2, LE8, LE9, S5, and S9) with factor loadings less  $\pm .50$  were deleted  
17 (Hair et al., 1998). In addition, the first socialization item (S1) was removed as its community  
18 value (.28) was too low (Costello & Osborne, 2005). Next, this study tested internal consistency  
19 of the measures and found that five factors presented good reliability values ( $\alpha = .79$  to  $\alpha = .96$ ).  
20 Finally, a total of 33 items were prepared for the main study: leisure experience (five items),  
21 environment (seven items), socialization (six items), personal identity (seven items), and group  
22 identity (eight items, see Table 3).

23 <Insert Table 3 about here>

## Phase Two: Main Study

### Research Participants

The targeted samples for the main study were event participants and spectators attending a popular sporting event in Singapore (i.e., The DBS Marina Regatta 2018) for leisure and recreational purposes and who noted nostalgic feelings toward their favorite leisure activities in the past. As in Phase One of the study, nostalgic feelings were assessed with one question to determine respondents' nostalgic level. All respondents answered they had positive memories toward their favorite leisure activities ( $M = 5.65$ ). Using a convenience sampling technique, two trained research assistants approached and recruited individuals to participate in the survey. A S\$10 (about US\$7.3) cash voucher was offered to each participant for participating in this study. The respondents answered questions about their leisure experience and leisure nostalgia. Upon completion, the research assistants checked to ensure that the questionnaires were completely answered before requesting the respondents to sign on the form to indicate that they received the cash voucher. A total of 450 responses were collected, with a response rate of 92.98%.

### Data Analysis

In this phase of the study, confirmatory factor analysis (CFA) was conducted to assess the overall model fit, reliability, and validity of the measurement scale using EQS 6.3. For the goodness-of-fit tests for the model, Satorra-Bentler scaled statistic ( $S-B\chi^2$ ), root mean square error of approximation (RMSEA), standardized root mean squared residual (SRMR), non-normed fit indices (NNFI), and comparative fit index (CFI) were employed. This study used the cut-off values of .90 for CFI and NNFI, of .06 for RMSEA, and of .08 for SRMR (Hu & Bentler, 1999). To examine the reliability of the measures, composite reliability was calculated. Convergent validity was assessed by average variance extracted (AVE) techniques. Convergent

1 validity is achieved if the amount of common variance that is explained by a factor is greater  
2 than amount of variance due to its measurement error ( $> .50$ , Fornell & Larcker, 1981).  
3 Discriminant validity was examined by comparing the square root of AVEs and correlations  
4 among the factors. To support discriminant validity, the square root of AVEs for each factor  
5 should exceed correlations with the other factors (Fornell & Larcker, 1981). Lastly, the  
6 equivalence of the measurement model between the pilot test samples (student group) and the  
7 main test samples (more generic group) was tested using a chi-square different test.

### 8 **Preliminary Analysis and Demographic Information**

9         Before analyzing the data, data screening processes were conducted to exclude outliers  
10 based on  $z$ -values and Mahalanobis distance, and missing values were treated using the  
11 expectation maximization (EM) algorithm. According to Cho et al. (2014), nostalgia can be  
12 defined as longing for the past with positive memories. Therefore, two respondents who  
13 answered they did not have any nostalgic experiences were excluded. In addition, 28 responses  
14 with univariate outliers based on  $z$  statistics and 16 responses with multivariate outliers based on  
15 Mahalanobis distance were removed from this study. This left 404 responses that were used in  
16 the main study. Further, this study examined skewness and kurtosis to identify univariate  
17 normality. The skewness statistics ranged from  $-0.77$  to  $-0.13$ , and the kurtosis statistics ranged  
18 from  $-0.71$  to  $0.63$  (see Table 4), supporting univariate normality. For multivariate normality,  
19 Mardia's (1985) multivariate kurtosis coefficients was used to identify multivariate normality.  
20 The results showed that Mardia's (1985) multivariate kurtosis coefficient was  $58.69$ , indicating  
21 the multivariate normality was violated (Bentler, 2005). Therefore, this study used Satorra-

1 Bentler scaled statistic ( $S-B\chi^2$ ; Satorra & Bentler, 1994) and robust standard errors (Bentler &  
2 Dijkstra, 1985) for CFA.

3 <Insert Table 4 about here>

4 Of the 404 respondents, 58.9% (n = 238) were male and 41.1% (n = 166) were female.  
5 Age was asked using an open-ended question, and the average age of the respondents was 28.23.  
6 As for marital status, single (85.4%) was the most common followed by married (13.6%),  
7 divorced (0.7%), and widowed (0.2%). The most reported category of monthly household  
8 income was from \$2,000 to \$4,999 (30.4%), while 29.1% of respondents answered that their  
9 household income was \$8,000 or higher. In addition, only 18.1% of the respondents spent more  
10 than \$100 per month for their favorite leisure activities, and 36% of the respondents answered  
11 that they did not spend their money on leisure activities (see Table 5).

12 <Insert Table 5 about here>

### 13 **Assessment of the Measurement Model**

14 The initial model fit the data poorly:  $S-B \chi^2(517) = 1471.37$ ,  $RMSEA = .07$ ,  $SRMR$   
15  $= .08$ ,  $NNFI = .89$ , and  $CFI = .90$ . This study also conducted the Lagrange Multiplier tests to  
16 identify the necessity of treating error covariances. From the result of the Lagrange Multiplier  
17 tests, three error covariances (E4 and E5 in environment, PI1 and PI2 in personal identity, and  
18 GI1 and GI2 in group identity) were correlated to improve the model. The revised model showed  
19 an improved fit:  $S-B \chi^2(482) = 1153.33$ ,  $RMSEA = .06$ ,  $SRMR = .07$ ,  $NNFI = .92$ , and  $CFI = .93$   
20 (90% Confidence Intervals: .05 ~ .06).

21 Next, the researchers assessed the reliability, convergent validity, and discriminant  
22 validity of the measurement model (see Table 6). First, the overall Rho coefficient of the total  
23 measurement model was .97, and the Rho coefficients of the five factors ranged from .85 for

1 leisure experience to .94 for group identity, indicating satisfactory internal consistency. To  
2 confirm convergent validity, this study assessed average variance extracted (AVE). The results  
3 showed that all AVEs of the five factors, ranging from .52 (environment) to .69 (socialization),  
4 were higher than .50, indicating acceptable convergent validity (common variance > unique  
5 variance; Fornell & Larcker, 1981). Lastly, the correlations between the factors were compared  
6 with the square root of AVE to identify discriminant validity. The square root of AVEs (.72  
7 ~ .83) of five factors were higher than the correlations among all factors (.45 ~ .70), indicating  
8 discriminant validity (see Table 7).

9 <Insert Table 6 about here>

10 <Insert Table 7 about here>

11 Lastly, this study further examined the invariance of the nostalgia scale using the two  
12 previous data sets: the Phase One student group ( $n = 134$ ) vs. the Phase Two generic group ( $n =$   
13 404). The study conducted a  $\chi^2$  difference test and compared the values between the null model  
14 with unconstrained parameters ( $S-B\chi^2 = 1781.80, df = 966$ ) and the alternative model with all  
15 factor loadings constrained to be equal ( $S-B\chi^2 = 1810.37, df = 994$ ). The test revealed that the  
16 chi-square difference value ( $\Delta S-B\chi^2 = 28.67, \Delta df = 28$ ) was less than its critical value of 41.34 at  
17 the .05 probability level, failing to reject the null of equality (see Table 8). In addition, the two  
18 models showed no change in CFI ( $\Delta CFI = .000$ ), supporting metric invariance of the scale  
19 (Cheung & Rensvold, 2002). Hence, it was concluded that the contents of all items in the  
20 nostalgia scale were identically perceived by the two different groups of leisure participants.

21 <Insert Table 8 about here>

## 22 Discussion

1           The main purpose of this study was to develop a sound measurement scale for nostalgic  
2 leisure behavior. The procedures recommended by Hinkin et al. (1997) were undertaken for  
3 enhanced rigor in this scale development. The domains of nostalgia in leisure were developed on  
4 the basis of Cho et al.'s (2014) classification of nostalgia in sport tourism, which was grounded  
5 on the concepts of the structure and the purpose of nostalgia (Fairley, 2003; Fairley & Gammon,  
6 2005; Jenkins, 1996; Stets & Burke, 2000; Wilson, 2005). The classification consists of two  
7 domains: purpose of nostalgia and structure of nostalgia. These are then divided into four sub-  
8 domains: nostalgia as experience, nostalgia as socialization, nostalgia as personal identity, and  
9 nostalgia as group identity. Hence, the four-dimensional nostalgia scale was specified.

10           However, the factor analysis in this study supported a five-factorial structure of the  
11 nostalgia construct (i.e., leisure experience, environment, socialization, personal identity, and  
12 group identity), unlike the four-factor model proposed by Cho et al. (2014). Specifically, the first  
13 domain, nostalgia as leisure experience, branched out into two factors – leisure experience and  
14 environment. After generating the initial sample of items, a Q-sort and expert review were  
15 utilized for face and content validity (Zait & Berteau, 2011). The purpose of the Q-sort method  
16 was to develop a set of items that represented each of the four factors, and the respondents were  
17 simply asked to determine the relevance of the items with the four factors given. Therefore, they  
18 were not provided a chance to review if each factor was adequately conceptualised. On the other  
19 hand, a panel of expert was provided the two-by-two classification of nostalgia (Cho et al., 2014)  
20 as well as the detailed definition of each factor and then asked to assess the appropriateness of  
21 each item for its specified factor. Unfortunately, the experts did not identify the potential for  
22 leisure experience to assess different aspects. However, this result is not necessarily surprising.  
23 Nostalgia as experience explains how people, places, and experiences or things can evoke

1 individuals' nostalgic feelings (Fairley, 2003). While the components of leisure experience and  
2 environment are matched exactly with the Cho et al.'s (2014) concept of nostalgia as experience,  
3 each poses different and distinct characteristics in leisure. The measures of leisure experience are  
4 mainly associated with personally-derived aspects of the leisure experience itself, such as  
5 "remembering my leisure activity...", "my exciting leisure activities in the past...",  
6 "remembering the freedom I experiences...", etc. However, the items measuring environment  
7 address the more external aspects of leisure facilities and ambiance, such as "my favorite leisure  
8 place...", "memorable weather...", "the architectural design...", etc. Thus, the nostalgia as  
9 experience domain encompassed two factors (i.e., leisure experience and environment),  
10 suggesting that they are distinctive in their nature and should be conceptualized separately.

11         This finding is important and valuable as it can shed light on detailed aspects of nostalgia  
12 by more precisely specifying the role of nostalgia in the context of leisure. As mentioned, the  
13 domain of nostalgia as experience may encompass many triggering factors. The differentiation  
14 allows for better specificity and thorough observation of the underlying nostalgia-driven  
15 behaviors. The first factor, leisure experience, refers to an affective affliction toward past  
16 experiences. Supporting this proposition, Gammon (2002) highlighted the significance of  
17 memory and emotion to experiences that induce nostalgic feelings. It places more weight on the  
18 overall experience than the event alone, including the journey to a leisure event, social  
19 experience, and having the opportunity to interact with one's favorite leisure activities. Next,  
20 leisure environment can account more for external components, such as facilities, equipment,  
21 and atmosphere. For instance, Gammon and Ramshaw (2007) explained that individuals'  
22 childhood memories related to the atmosphere of a sporting event can trigger nostalgia, leading  
23 to feelings of contentment, attending a sport event and being surrounded by the same

1 atmosphere. Certainly, the atmosphere created at the leisure location, the design of facilities,  
2 equipment, or memorable weather during leisure activities could be unique attractions and  
3 primary sources that evoke nostalgic feelings.

4         Next, this study found that the other three factors (i.e., socialization, personal identity,  
5 and group identity) were consistent with the classification of nostalgia (Cho et al., 2014). In the  
6 field of leisure, the importance of socialization has been highlighted as an essential determinant  
7 of leisure participation (Funk & James, 2006). Individuals are connected to groups in various  
8 forms, such as family, friends, and even media outlets (Lock, Taylor, Funk, & Darcy, 2012) and  
9 are exposed to social factors that are influential in the early affiliation to a preference (James,  
10 2001). In addition, the past social experience evokes individuals' nostalgic feelings (Cho et al.,  
11 2014). Fairley (2003) addressed that social experience is a significant factor influencing  
12 individuals' nostalgia. That is, consistent with previous studies, this study found that individuals  
13 could have diverse social experiences and memories of social interaction while being involved in  
14 leisure activities, which, in turn, generate their nostalgic feelings.

15         Next, this study showed that individuals have nostalgic feelings regarding personal  
16 identity established during leisure experiences. Personal identity involves a self-description of  
17 individuals' attributes, and personal identity salience is dependent on the situation (Trepte &  
18 Loy, 2017). While participating in leisure activities, individuals can understand and identify  
19 themselves (Haggard & William, 1992) and express their identity (Kleiber, 1999). They might  
20 also come to the realization that the leisure activity is important to them (Loveday, Lovell, &  
21 Jones, 2018). In other words, by participating in leisure activities, an individual can build his or  
22 her personal leisure identity, affecting not only individuals' behavior (Wann & Branscombe,  
23 1993) but also their feelings of nostalgia (Davis, 1979).

1           In addition, this study found that leisure participants have nostalgic feelings regarding  
2 group identity. Group identity refers to the feeling of belonging to one or more groups (Tajfel,  
3 1981). It is the perception of self with regard to the identified group and focuses on collective  
4 memory that includes a group's iconic moment (Jacobson, 2003). Fairley and Gammon (2005)  
5 noted that a group-based experience leads people to feel nostalgia, which pushes an individual to  
6 participate in a particular leisure activity and become involved as a member of the group. In  
7 addition, the maintenance of support or involvement in leisure is dependent on the support of in-  
8 group members (Wann, Tucker, & Schrader, 1996). With this support, the utility of the  
9 classification (Cho et al., 2014) has made the findings less generic and more precise in the  
10 knowledge it offers. Therefore, the understanding of nostalgia can propel a more comprehensive  
11 approach to encourage leisure engagement.

12           Cho et al. (2014) noted that "the concept of nostalgia is complex and difficult to measure,  
13 in part because of its diverse emotional perspectives" (p. 145). Nostalgia is highly related to the  
14 concept of motivation (Ramshaw & Gammon, 2005; Weed & Bull, 2004). Previous research that  
15 focused on motivations behind travel suggested that nostalgia can be a push factor (Leong, Yeh,  
16 Hsiao, & Huan, 2015). On the other hand, Cho et al. (2014) contended that although nostalgia  
17 and motivation might be closely related, in essence they are conceptually different. Nostalgia is a  
18 bittersweet emotion and theoretically consists of four components (Cho et al., 2014), whereas  
19 motivation can be examined by measuring physical attraction, escape, esthetic pleasure, and  
20 social interaction (Trail & James, 2001). In drawing a relationship between nostalgia and  
21 motivation, Stephan et al. (2014) suggested that nostalgia acts as a regulator in maintaining  
22 psychological stability and cushioning the negative impact of a stimulus. It also strengthens the  
23 key role of nostalgia by providing a positive outlook on the future. Hence, in order to provide a

1 broader insight on leisure, nostalgia should be considered an emotional factor that strengthens  
2 and optimizes the functioning of the cognitive, affective and behavioral system (Sedikides,  
3 Wildschut, Routledge, Arndt, Hepper, & Zhou, 2015).

4 Individuals have an ability to mediate the past and attempt to recreate or partake in more  
5 activities that induce the same positive emotions they experience (Nauright, 2003). Therefore,  
6 nostalgia is a pivotal notion in steering individuals' behavior, such as leisure participation  
7 (Gordon, 2013). Understanding nostalgia can propel a more comprehensive approach to  
8 encouraging leisure engagement. The LNS developed in this study contributes to a deeper  
9 appreciation of nostalgia in the context of leisure and expands the current knowledge in leisure  
10 research. In other words, this study provides the empirical framework that ties nostalgia with  
11 leisure and introduces a scale that measures nostalgia in the context of leisure. It can be  
12 considered as a stepping-stone in establishing the role of nostalgia within the context of leisure.  
13 As a result, the development of a scale contributes to the theoretical and practical body of  
14 understanding that may be used to further research in this field.

### 15 **Limitations and Future Research**

16 Although the study was successful in delivering its purpose, there are several limitations  
17 to note. First, the majority (i.e. 85.4%) of the respondents in this study were single. Having the  
18 majority of the sample with one marital status may not provide a comprehensive understanding  
19 of leisure nostalgia for other groups. Single adults may partake in different kinds of leisure  
20 activities compared to people who are married and have young children (Brown, Mishra, Lee, &  
21 Bauman, 2000). For instance, a married individual may have less time to participate in leisure  
22 and have a tendency to participate in leisure activities that are more inclusive of their families  
23 (Lee & Bhargava, 2004). Second, the data were collected only in Singapore. Given that, although

1 the findings provide a good support of the concept of nostalgia within the parameters of leisure,  
2 the pool of responses may not be generalizable across different populations around the world.  
3 Therefore, future research needs to collect data from other countries and conduct a cross-cultural  
4 invariance test of the LNS to enhance its external validity. Lastly, it can be observed from the  
5 results that memory is closely associated with nostalgia. Memory, however, is not a constant and  
6 stagnant part of the mind. It changes and may even get distorted at different stages in time (Kim,  
7 2017). In other words, there is a tendency for individuals to change their opinions about events or  
8 experiences during different periods of time and space. Hence, future research should employ a  
9 longitudinal study, implementing repeated observations at different stages of time to examine  
10 this aspect more closely.

### 11 **Conclusion**

12 Understanding the concept of nostalgia may be difficult for research participants as  
13 nostalgia has multiple dimensions and may hold both positive and negative emotions (Cho et al.,  
14 2014). In addition, nostalgia is related to diverse constructs, such as motivation, place  
15 attachment, emotional solidarity, attitude, and behavioral intentions. Therefore, to avoid  
16 misunderstanding the concept, this study provided the definition of nostalgia to the research  
17 participants, focusing on a 'longing for the past'. Previous research has not widely studied the  
18 concept of nostalgia in the field of leisure. This study has laid down the groundwork for further  
19 research regarding nostalgia in this context. From an academic viewpoint, this study addressed  
20 the psychometric properties of the LNS by examining the overall and internal fit of the model to  
21 the data. With the measurement model proposed in this study, the scale can be brought forward  
22 to encourage more generalizable and detailed research on leisure nostalgia. For instance, by  
23 using the LNS, future research may investigate the impacts of leisure nostalgia on psychological

1 responses (e.g., well-being, life satisfaction) and behavioral intentions (e.g., participation  
2 intention) of leisure participants. From a practical viewpoint, the LNS can be effectively used in  
3 leisure and recreation industries. Nostalgia plays a role in shaping the perception of personal  
4 identity with regard to social settings (Gvion, 2009) and facilitating leisure choices (Fairley,  
5 2003). Thus, managers and stakeholders in the leisure industry could use the LNS as a tool to  
6 better understand leisure participants' nostalgic behavior and the relationship between nostalgia  
7 and leisure consumer behavior.

8

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## 1 Table 1

2 *Classification of Nostalgia*

		Purpose of Nostalgia	
		Experience-based nostalgia	Identity-based nostalgia
Structure of nostalgia	Object-based nostalgia	Experience	Personal identity
	Interpersonal relationship-based nostalgia	Socialization	Group identity

3 Source: Cho et al. (2014).

4

## 1 Table 2

2 *Descriptive Statistics for the Measures in the Pilot Study (N = 134)*

Item	M	SD	Skewness	Kurtosis
<b>Leisure Experience</b>				
(LE1) Remembering my leisure activity that I enjoyed	5.57	1.12	-0.96	1.17
(LE2) Remembering the moment of learning leisure knowledge	5.32	1.12	-0.76	1.02
(LE3) My exciting leisure experience in the past	5.61	0.94	-0.58	0.81
(LE4) Remembering the freedom I experienced during my favorite leisure activity	5.69	1.02	-0.50	-0.34
(LE5) Free time I had during my favorite leisure activity	5.51	1.34	-0.84	1.26
(LE6) Recharging myself through leisure activity	5.63	1.00	-0.42	-0.32
(LE7) The food I ate during my favorite leisure time period	4.30	1.50	-0.31	-0.22
(LE8) The atmosphere created at the location of my favorite leisure activity	5.49	1.26	-0.93	1.22
(LE9) The music that I heard during my favorite leisure activity	4.93	1.44	-0.62	0.28
(LE10) The appearance of my favorite leisure place	4.87	1.12	-0.59	0.39
(LE11) Memorable weather during my favorite leisure time	4.57	1.49	-0.50	0.15
(LE12) The practical design of my favorite leisure place	4.49	1.36	-0.86	0.98
(LE13) The architectural design of my favorite leisure place	4.38	1.43	-0.51	0.22
(LE14) The leisure activity equipment I used	5.06	1.36	-0.90	0.97
(LE15) The size of my favorite leisure place	4.60	1.47	-0.68	0.31
<b>Socialization</b>				
(S1) Family members participating in leisure activity with me	4.34	1.77	-0.44	-0.71
(S2) Friends participating in leisure activity with me	5.54	1.21	-1.03	1.45
(S3) Positive memories shared with others during my favorite leisure activity	5.58	1.13	-1.33	2.66
(S4) Memories of building friendships with others during my favorite leisure activity	5.53	1.24	-1.02	1.40
(S5) Memories of getting useful information by talking to others during my favorite leisure activity	5.28	1.19	-0.95	1.26
(S6) Memories of socializing with others during my favorite leisure	5.54	1.24	-1.11	1.94
(S7) Memories of making new friends during my favorite leisure	5.13	1.53	-1.16	1.17
(S8) Entertainments enjoyed with others during my leisure activity	5.35	1.25	-1.35	2.47
(S9) Memories of dining out together	4.95	1.61	-0.99	0.43
<b>Personal Identity</b>				
(PI1) Identifying myself as a lover of my favorite leisure activity	5.25	1.35	-0.99	1.34
(PI2) Pride in being a lover of my favorite leisure activity	5.25	1.32	-0.94	1.09
(PI3) A feeling of satisfaction as a loyal leisure participant of my favorite leisure activity	5.37	1.28	-1.26	2.49
(PI4) Positive feelings about myself as a lover of my favorite leisure activity	5.31	1.29	-0.96	1.38
(PI5) My value as a leisure participant	5.25	1.31	-1.04	1.66
(PI6) Sense of accomplishment as a leisure participant	5.49	1.26	-1.16	1.82
(PI7) Being loyal to my favorite leisure activity	5.24	1.40	-0.90	0.93
<b>Group Identity</b>				
(GI1) Unique characteristics of my leisure social group	5.07	1.47	-1.05	0.97
(GI2) The traditions of my leisure group	4.77	1.43	-0.71	0.66
(GI3) Group rituals at the leisure place	4.70	1.53	-0.80	0.44
(GI4) Shared memories which affected my group identity at the leisure place	4.97	1.57	-0.87	0.61
(GI5) History of my group that shared a lot in common with my group members	4.82	1.48	-0.83	0.61
(GI6) Pride of being a part of my group at the leisure place	4.93	1.50	-0.94	0.80
(GI7) Experiences of group bonding during my leisure activity	5.20	1.56	-1.15	1.04
(GI8) How important I was to the members of my leisure group	4.84	1.60	-0.87	0.33

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Table 3

Factor Patter Matrix in the Pilot Study ( $N = 134$ )

Item	Leisure Experience	Environment	Socialization	Personal Identity	Group Identity	Communality
LE1	<b>.72</b>	-.03	-.02	.02	.16	.60
LE2*	.25	.27	.16	.29	-.34	.40
LE3	<b>.73</b>	-.07	.21	-.08	.17	.69
LE4	<b>.56</b>	-.05	.03	.31	-.28	.48
LE5	<b>.68</b>	-.10	.06	.20	-.02	.61
LE6	<b>.66</b>	-.00	-.14	-.07	.33	.51
LE7 (E1)	-.03	<b>.66</b>	-.10	-.04	.06	.40
LE8*	.18	.28	.05	.15	.12	.35
LE9*	-.11	.39	-.12	.23	.03	.22
LE10 (E2)	-.03	<b>.61</b>	-.20	.22	.11	.52
LE11 (E3)	.06	<b>.65</b>	.06	-.19	.21	.52
LE12 (E4)	.03	<b>.90</b>	-.03	-.06	.03	.77
LE13 (E5)	.06	<b>.87</b>	.01	-.10	-.03	.70
LE14 (E6)	.06	<b>.56</b>	.01	.21	.04	.56
LE15 (E7)	-.08	<b>.78</b>	.03	.11	-.01	.69
S1*	.02	.06	<b>.64</b>	-.07	-.17	.28
S2	-.10	-.19	<b>.75</b>	.06	.23	.75
S3	-.02	-.17	<b>.80</b>	.05	.11	.73
S4	-.00	-.07	<b>.75</b>	.09	.12	.74
S5*	.10	-.09	.20	.12	.40	.40
S6	.07	-.16	<b>.78</b>	.04	.08	.69
S7	.01	.37	<b>.65</b>	-.01	-.05	.67
S8	.09	.08	<b>.86</b>	-.18	.02	.70
S9*	-.23	.40	.33	.00	.16	.44
PI1	-.06	.05	.28	<b>.74</b>	-.07	.76
PI2	-.03	.02	.13	<b>.81</b>	.03	.81
PI3	-.00	.04	-.10	<b>.91</b>	-.01	.76
PI4	.01	-.03	.05	<b>.86</b>	.06	.84
PI5	-.01	.05	-.05	<b>.83</b>	.09	.77
PI6	.07	-.13	-.09	<b>.63</b>	.29	.56
PI7	.10	-.04	-.14	<b>.75</b>	.20	.69
GI1	.07	.04	-.09	.13	<b>.81</b>	.78
GI2	.13	.06	-.08	-.09	<b>.88</b>	.73
GI3	-.03	.30	.04	-.17	<b>.75</b>	.74
GI4	-.03	.13	.04	.16	<b>.69</b>	.79
GI5	-.04	-.04	.15	.07	<b>.74</b>	.74
GI6	.01	.03	.21	.10	<b>.67</b>	.84
GI7	-.06	-.04	.18	.02	<b>.79</b>	.82
GI8	.02	.13	.12	.06	<b>.65</b>	.72

\*Items removed after EFA.

Note 1: LE = Leisure Experience; S = Socialization, PI = Personal Identity; GI = Group Identity; E = Environment

Note 2: The parentheses show the rename items after EFA.



## 1 Table 4

2 *Descriptive Statistics of the Measures in the Main Study (N = 450)*

Item	M	SD	Skewness	Kurtosis
_____ evoke(s) my nostalgic feelings.				
<b>Leisure Experience</b>				
(LE1) Remembering my leisure activity that I enjoyed	5.63	1.04	-0.40	-0.44
(LE3) My exciting leisure experience in the past	5.64	0.90	-0.38	-0.44
(LE4) Remembering the freedom I experienced during my favorite leisure activity	5.61	1.05	-0.54	-0.20
(LE5) Free time I had during my favorite leisure activity	5.29	1.25	-0.48	-0.34
(LE6) Recharging myself through leisure activity	5.50	1.14	-0.48	-0.38
<b>Environment</b>				
(E1) The food I ate during my favorite leisure time period	4.68	1.43	-0.31	-0.17
(E2) The appearance of my favorite leisure place	5.25	1.24	-0.29	-0.26
(E3) Memorable weather during my favorite leisure time	4.96	1.34	-0.40	0.01
(E4) The practical design of my favorite leisure place	4.82	1.31	-0.23	-0.29
(E5) The architectural design of my favorite leisure place	4.73	1.38	-0.13	-0.39
(E6) The leisure activity equipment I used	5.29	1.21	-0.54	0.17
(E7) The size of my favorite leisure place	4.86	1.33	-0.28	0.05
<b>Socialization</b>				
(S2) Friends participating in leisure activity with me	5.81	1.20	-0.77	0.63
(S3) Positive memories shared with others during my favorite leisure activity	5.81	0.95	-0.47	-0.37
(S4) Memories of building friendships with others during my favorite leisure activity	5.83	0.96	-0.51	-0.34
(S6) Memories of socializing with others during my favorite leisure	5.67	0.99	-0.44	-0.31
(S7) Memories of making new friends during my favorite leisure	5.60	1.07	-0.49	-0.26
(S8) Entertainments enjoyed with others during my leisure activity	5.50	1.03	-0.42	-0.20
<b>Personal Identity</b>				
(PI1) Identifying myself as a lover of my favorite leisure activity	5.48	1.12	-0.49	-0.23
(PI2) Pride in being a lover of my favorite leisure activity	5.53	1.06	-0.34	-0.65
(PI3) A feeling of satisfaction as a loyal leisure participant of my favorite leisure activity	5.53	1.05	-0.31	-0.65
(PI4) Positive feelings about myself as a lover of my favorite leisure activity	5.52	1.08	-0.36	-0.51
(PI5) My value as a leisure participant	5.38	1.08	-0.21	-0.65
(PI6) Sense of accomplishment as a leisure participant	5.64	1.05	-0.40	-0.50
(PI7) Being loyal to my favorite leisure activity	5.47	1.13	-0.41	-0.39
<b>Group Identity</b>				
(GI1) Unique characteristics of my leisure social group	5.30	1.13	-0.15	-0.71
(GI2) The traditions of my leisure group	5.14	1.24	-0.39	0.00
(GI3) Group rituals at the leisure place	4.71	1.33	-0.13	-0.17
(GI4) Shared memories which affected my group identity at the leisure place	5.17	1.20	-0.15	-0.37
(GI5) History of my group that shared a lot in common with my group members	5.17	1.16	-0.22	-0.04
(GI6) Pride of being a part of my group at the leisure place	5.30	1.19	-0.14	-0.84
(GI7) Experiences of group bonding during my leisure activity	5.47	1.12	-0.24	-0.69
(GI8) How important I was to the members of my leisure group	5.31	1.20	-0.25	-0.59

## 1 Table 5

2 *Demographic Information in the Main Study (N = 404)*

Variable	Category	N	Percent	Total
Gender	Male	238	58.9	404
	Female	166	41.1	
	No Response	3	.5	
Age	20-29	281	69.5	404
	30-39	83	50.5	
	40-49	12	3.0	
	50-59	20	5.0	
	60 and over	7	1.7	
	No response	1	0.2	
Marital Status	Single, never married	345	85.4	404
	Married	55	13.6	
	Separated/divorced	3	0.7	
	Widowed	1	0.2	
Monthly Household Income	Under \$2,000	85	21.0	404
	\$2,000 - \$4,999	123	30.4	
	\$5,000 - \$7,999	72	17.8	
	\$8,000 - \$9,999	41	10.1	
	\$10,000 - \$14,999	34	8.4	
	\$15,000 over	43	10.6	
	No response	6	1.5	
	Under \$49	279	69.1	
Monthly Payment for Leisure Activity	\$50 - \$99	51	12.6	404
	\$100 - \$199	37	9.2	
	\$200 - \$299	14	3.5	
	\$300 over	22	5.4	
	No response	1	0.2	

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## 1 Table 6

2 *Factor Loadings, Composite Reliability, and AVEs of the Measurement Model*

Factor	Item	$\lambda$	Rho coefficient	AVE
Leisure Experience	LE1	.82	.85	.54
	LE3	.82		
	LE4	.74		
	LE5	.68		
	LE6	.59		
	Environment	E1		
	E2	.71		
	E3	.75		
	E4	.79		
	E5	.75		
	E6	.68		
	E7	.76		
Socialization	S2	.82	.93	.69
	S3	.89		
	S4	.90		
	S6	.88		
	S7	.81		
	S8	.65		
Personal identity	PI1	.77	.93	.66
	PI2	.84		
	PI3	.88		
	PI4	.86		
	PI5	.76		
	PI6	.77		
	PI7	.79		
Group identity	GI1	.72	.94	.67
	GI2	.72		
	GI3	.70		
	GI4	.90		
	GI5	.88		
	GI6	.90		
	GI7	.86		
	GI8	.82		

## 1 Table 7

2 *Correlations among the Factors of the Measurement Scale*

	1	2	3	4	5
1. Leisure experience	.73 <sup>1</sup>				
2. Environment	.66	.72 <sup>1</sup>			
3. Socialization	.63	.45	.83 <sup>1</sup>		
4. Personal identity	.68	.67	.62	.81 <sup>1</sup>	
5. Group identity	.53	.53	.68	.70	.82 <sup>1</sup>

<sup>1</sup>Square root on AVE

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1 Table 8

2 *Test for Invariance of the Measurement Model*

	S-B $\chi^2$	df	CFI	RMSEA	RMSEA 90% CI	$\Delta$ S-B $\chi^2$	$\Delta$ df	$\Delta$ CFI
Ho: Model with no constrained parameters	1781.80	966	.915	.056	.052, .060	----	-----	-----
H <sub>A</sub> : Model with all factor loadings constrained	1810.37	994	.915	.056	.051, .060	28.57	28	.000

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