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The nature and measurement of sensory curiosity

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Abstract

To determine if sensory curiosity (SC) could be identified as a meaningful psychological construct, a pool of SC items was administered to 552 undergraduate students (402 women, 150 men), along with measures of perceptual and epistemic curiosity. Participants also responded to the trait anxiety, anger, and curiosity scales of the State-Trait Personality Inventory (STPI), and subscales of the Sensation Seeking Scale (SSS). Factor analyses of the SC items identified one strong factor, from which 10 items were selected to form a SC scale. Positive correlations of the SC scale with the other curiosity scales that were stronger than the correlations of the SSS subscales with these measures, provided evidence of convergent and discriminant validity for the SC scale. Divergent validity was evidenced by essentially zero correlations of the SC scale with the STPI anxiety, anger and depression measures.

Keywords: Curiosity; Sensation seeking; Scale development; State-Trait Personality Inventory

1. Introduction

Curiosity reflects a desire for new information, which is aroused by novel, complex, or ambiguous stimuli, and motivates exploratory behavior. Berlyne (1949, 1950, 1954, 1960), who is widely

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regarded as the most influential contributor to theory and research on curiosity and exploration, differentiated between two types of curiosity: *Perceptual* and *epistemic*. Perceptual curiosity is aroused by the presentation of new or unusual sights or sounds, and motivates exploratory behaviors such as visual inspection or attentive listening. Epistemic curiosity is stimulated by intellectual uncertainty, and motivates behaviors such as asking questions in order to acquire knowledge (Berlyne, 1966).

Although Berlyne investigated the different types of stimuli that aroused curiosity, and the exploratory behaviors that followed, he did not recognize the importance of measuring the intensity of curiosity as an internal state, nor differential tendencies to experience and express curiosity as a personality trait. This distinction between states and traits provided the conceptual framework for the development of the State-Trait Curiosity Inventory (STCI: Spielberger, Peters, & Frain, 1976, 1981), which assesses the intensity of curiosity at a particular moment in time (state curiosity), as well as the frequency that curiosity-states are experienced (trait curiosity). The individual STCI items inquire about the intensity of feeling interested and intellectually stimulated (e.g., "I feel mentally active"), and how often these states are experienced over time.

In previous research with the STCI, Olson, Camp, and Fuller (1984) reported strong correlations of the State Curiosity (r = .55) and Trait Curiosity (r = .67) scales with Cacioppo and Petty's (1982) Need for Cognition scale. Starr (1992) found small correlations (*mdn* r = .32) of the STCI scales with the Internal and External Cognition subscales of Pearson's (1971) Novelty Experiencing Scale (NES) and with the Experience Seeking (ES) and Thrill-and-Adventure Seeking (TAS) subscales (*mdn* r = .16) of Zuckerman's (1979, 1994) Sensation Seeking Scale (SSS). While these findings suggest that the STCI scales are more strongly related to seeking knowledge than searching for different types of novel sensory experiences, they also suggest that curiosity and sensation seeking have some degree of overlap.

While the STCI scales assess the intensity and frequency of feeling curious, they do not take into account the particular stimuli that arouse these feelings. Guided by Berlyne's (1954) concepts of curiosity, the Perceptual Curiosity (PC) scale (Collins, 1996; Collins, Litman, & Spielberger, 2004) was designed to assess emotional reactions to stimuli that motivate perceptually stimulating activities (e.g., "I enjoy visiting art galleries and art museums"), while the Epistemic Curiosity (EC) scale (Litman, 1998; Litman & Spielberger, 2003) was developed to assess individual differences in reactions to stimuli that activate cognitive processes (e.g., "I enjoy discussing abstract concepts").

The PC and EC scales have been found to correlate positively with the SSS-ES and SSS-TAS subscales, and the NES External Sensation subscale (Collins, 1996, 2000; Collins et al., 2004; Litman, 1998, 2000; Litman & Spielberger, 2003). Although small in magnitude, most of these correlations were statistically significant, suggesting that reactions to stimuli that arouse cognitive and perceptual processes may also involve sensation seeking. These findings also corroborated the results of previous research with the STCI, further suggesting that sensation seeking and curiosity are related, at least to some extent (Starr, 1992).

1.1. Curiosity and sensation seeking

Zuckerman defines sensation seeking in terms of exploratory behaviors that involve "seeking of varied, novel, complex, and intense sensations and experiences" (1994, p. 27). While this definition

is similar in some respects to Berlyne's (1949, 1950, 1954, 1960) concept of curiosity, sensation seeking, as measured by the SSS, also involves "the willingness to take physical, social, legal, and financial risks" (Zuckerman, p. 27). Thus, sensation seeking as defined by Zuckerman differs from Berlyne's concept of curiosity in that it involves participating in potentially risky activities in order to experience very high levels of emotional arousal. Consistent with this interpretation, Zuckerman (1994) reported that SSS scores correlated positively with selecting high-risk vocations (e.g., police officer, fireman), and with self-reports of engaging in activities that are inherently dangerous (e.g., sky-diving, high-speed driving).

The SSS is comprised of four 10-item subscales that assess different aspects of sensation seeking: (1) Thrill and Adventure Seeking (TAS), which involves engaging in physically dangerous activities (e.g., "I would like to try parachute jumping"); (2) Experience Seeking (ES), in which novel stimulation is sought through travel and nonconformity (e.g., "I like to explore a strange city or section of town by myself, even if it means getting lost"); (3) Disinhibition (Dis), which indicates a preference for uninhibited social settings (e.g., "I like wild, uninhibited parties"); and (4) Boredom Susceptibility (BS), i.e., disliking experiences that reduce emotional arousal (e.g., "The worst social sin is to be a bore").

As noted previously, small positive correlations between the SSS-TAS and SSS-ES subscales have been found with measures of S-Curiosity, T-Curiosity, and PC and EC (Collins, 1996; Litman, 1998; Litman & Spielberger, 2003; Starr, 1992). The SSS-TAS and SSS-ES subscales also correlated positively with Need for Cognition (Olson et al., 1984), which is conceptually similar and empirically related to curiosity. However, the SSS-Dis and SSS-BS subscales do not correlate significantly with either T-Curiosity or Need for Cognition (Olson et al., 1984; Starr, 1992). These findings suggest that some aspects of sensation seeking may also involve interest in acquiring new information as well as a desire to increase arousal. This type of sensation seeking appears to reflect "sensory curiosity," an aspect of the broader curiosity construct that has not been previously investigated. Like both curiosity and sensation seeking, sensory curiosity (SC) is hypothesized to motivate searching for novel and unusual sensory experiences. However, SC is considered to differ from sensation seeking in that it does not involve physical and social risk-taking or the desire for intense emotional arousal.

The major goal of the present study was to determine if SC could be identified as a meaningful psychological construct, which can be differentiated from sensation seeking. If a meaningful SC construct can be identified, a second goal was to develop an internally consistent scale for assessing individual differences in SC, for which convergent and divergent validity will be evaluated by examining its relationship to measures of curiosity, sensation seeking, and other personality traits.

2. Method

2.1. Participants

The participants were 552 undergraduate students (402 women, 150 men) recruited from psychology courses at a large urban university, ranging in age from 19 to 30 (*mdn* age = 24). All participants received extra credit points for taking part in the study, which could be applied to their final grade in a psychology course.

2.2. Measures

Each participant responded to four self-report questionnaires, which were given in the following order: (1) Curiosity Questionnaire; (2) STPI trait anxiety, anger, depression, and curiosity scales; (3) SSS Thrill and Adventure Seeking and Experience Seeking subscales, and the (4) NES Internal and External Cognition subscales. This order of presentation was determined primarily by similarities in the instructions and rating procedures for each measure, which are described below.

2.2.1. Curiosity Questionnaire

The 34-item Curiosity Questionnaire consisted of the 10-item PC and EC scales (Collins et al., 2004; Litman & Spielberger, 2003), and 14 experimental items constructed to assess individual differences in SC (Collins, 2000). In responding to each Curiosity Questionnaire item, the participants were instructed to report how they "generally feel" by rating themselves on a 4-point frequency scale (1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always), which has been used extensively to evaluate individual differences in other personality traits (Spielberger, 1983, 1988).

The content of the PC items inquired about interest in exploring novel, complex, or ambiguous perceptual stimuli (e.g., "I like to listen to new and unusual kinds of music."). The EC scale items described interest in exploring new ideas and figuring out how things work (e.g., "When I learn something new, I would like to find out more about it."). In previous research, the alpha coefficients for the 10-item PC and EC scales were satisfactory, ranging between .82 and .87 (Collins, 1996; Litman, 1998; Litman & Spielberger, 2003).

The 14 experimental SC items were selected from a larger pool developed by Collins (2000) to assess a broad range of sensory stimulation-seeking activities. These items were specifically designed to assess individual differences in preferences for novel and unusual sensory stimulation where there was relatively little danger associated with risk-taking (e.g., "I feel like riding a train like the Orient Express"). On the basis of factor analyses of this item pool, Collins also identified a number of items that were more strongly associated with risk-taking behaviors than with SC, which were dropped from further consideration. The procedures for constructing the SC item pool and selecting the 14 experimental items are reported in detail by Collins (2000).

2.2.2. STPI trait scales

The 10-item STPI trait scales assess individual differences in anxiety, anger, depression, and curiosity as personality traits (Spielberger, 1979). Participants responded to the 40 STPI trait items by rating themselves on the same 4-point frequency scale that was used with the Curiosity Questionnaire, as previously described. All four STPI trait scales have exhibited good internal consistency reliability in previous research, with alpha coefficients ranging from .80 to .96 (Spielberger, 1979).

2.2.3. The Novelty Experiencing Scale (NES)

Designed to assess the tendency to approach or avoid novel stimuli, Pearson's (1971) NES consists of four 20-item subscales: (1) External Sensation; (2) Internal Sensation; (3) External Cognition; and (4) Internal Cognition. Using a forced-choice preference format, respondents report

whether they ''like'' or ''dislike'' the activities described by each NES item (e.g., ''Understanding how a computer works'', ''Thinking a lot about a new idea''). Alpha coefficients for the four NES subscales range from .76 to .87. Only the Internal and External Cognition subscales were included in the present study.

2.2.4. Sensation Seeking Scale (SSS)

The SSS was developed by Zuckerman (1979, 1994) to assess individual differences in the tendency to seek novel sensory stimulation by engaging in specific exploratory behaviors (e.g., mountain climbing, water skiing, flying an airplane). In responding to the SSS items, subjects report which of two statements best describes their ''likes or feelings.'' Four major sensation seeking dimensions are assessed by 10-item subscales: (1) Thrill-and-Adventure-Seeking (TAS); (2) Experience Seeking (ES); (3) Disinhibition (Dis); and (4) Boredom Susceptibility (BS). Because the SSS-Dis and SSS-BS subscales did not correlate with other curiosity measures in previous research (Olson et al., 1984; Starr, 1992) and did not appear to be conceptually related to curiosity, only the SSS-TAS and SSS-ES subscales were included in the present study. The internal consistency reliabilities range from .77 to. 82 for the TAS subscale, and from .65 to .67 for the ES subscale.

2.3. Procedure

The Curiosity Questionnaire, STPI trait scales, and the NES and SSS subscales were administered in group-testing sessions to undergraduate university students. At the beginning of each testing session, the experimenter introduced himself to the participants, and informed them that the goals of the study were to learn about the feelings and attitudes of college students. The participants were also informed that additional information about the study would be made available to them after they finished responding to the questionnaires. Following these procedures, the experimenter handed out the packet of questionnaires to the participants, along with an informed consent form. Almost all of the students indicated that they were willing to participate in the study.

The participants were asked to complete a consent form, instructed to carefully read the directions for each questionnaire before responding, and to raise their hands if they had any questions. After each participant completed responding to the four questionnaires, the experimenter collected her/his materials, provided a handout with detailed information about the goals of the study, and asked the participant not to discuss the study with other students. Approximately 30–40 min were required to respond to the questionnaires.

3. Results

Principal axis factor analyses of responses to the 14 experimental SC items were computed to identify the best items for measuring individual differences in this construct. Separate analyses were conducted for women and men. In determining the optimal number of factors to extract, three main criteria were employed: (1) Cattell's (1957) scree test of the eigenvalues, (2) the amount of common variance explained by the factors, (Rummel, 1970), and (3) the psychological meaningfulness of the extracted factors (Hatcher, 1994).

The unrotated principal axis factor loadings for the 14 SC items are reported in Table 1. Based on the scree plot of the eigenvalues for both women (4.73, .43, .38) and men (5.89, .72, .37), only one psychologically meaningful factor was identified, which accounted for more than 88% of the common variance. Given evidence of only a single, very strong SC factor, no subsequent rotation of the SC items was conducted. Of the 14 SC items, 12 had dominant salient loadings of 50 or greater on this factor for both sexes. The content of the items with the strongest dominant loadings described engaging in adventurous exploratory behaviors that involved seeking novel and complex sensory experiences, and relatively little immediate danger (e.g., "hiking through a remote rain forest"; "sailing around the world").

Given that the PC, EC and T-Curiosity scales were each comprised of 10 items, it was considered desirable to construct a 10-item scale for assessing individual differences in SC. In selecting the 10 best items for the SC scale, the content of the 12 items with loadings greater than .50 were carefully reviewed. "Orbiting the Earth in a spaceship" was deleted because this item was considered to describe a highly improbable event. "Ride surfboard" had strong loadings, but this item

Table 1
Principal axis factor loadings for the preliminary set of 14 items and final set of 10 items that comprise the Sensory Curiosity (SC) scale for women and men

Item statement	14 items				10 items					
	Factor I		Factor II		Factor I		Factor II		I–R Correlations	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Hiking through a remote rain forest	**.73**	**.81**	−.13	−.19	**.75**	**.83**	−.19	−.19	.69	.77
Going on a dog sledding trip	**.63**	**.73**	−.02	.05	**.64**	**.72**	.03	.07	.59	.69
Sailing around the world	**.62**	**.71**	.03	.15	**.63**	**.71**	.04	.12	.58	.66
Riding a horse on a deserted beach	**.62**	**.68**	.05	.02	**.63**	**.69**	.02	.05	.58	.68
Taking a voyage through a desert	**.61**	**.65**	.28	.17	**.62**	**.67**	.27	.24	.57	.63
Camping in a remote wilderness	**.61**	**.71**	−.18	−.35	**.61**	**.72**	−.21	−.29	.55	.66
Climbing a mountain I have never climbed	**.59**	**.61**	−.10	−.33	**.60**	**.62**	−.15	−.27	.55	.57
Scuba diving	**.62**	**.75**	−.25	−.18	**.58**	**.73**	−.19	−.20	.52	.67
Flying an airplane	**.56**	**.60**	.17	.17	**.51**	**.54**	.13	.15	.48	.48
Traveling on a train like the Orient Express	**.51**	**.54**	.35	.48	**.51**	**.52**	.34	**.50**	.47	.52
Ride surfboard	**.56**	**.52**	−.21	.08						
Orbiting the Earth in a spaceship	**.55**	**.61**	.13	.28						
Take trip with no preplanned routes	.46	.44	.05	−.05						
Snow skiing	.40	**.62**	−.10	−.12						
Eigenvalues	4.73	5.89	.43	.72	3.74	.35	4.64	.59		

Notes: Factor loadings $\geqslant .50$ are in boldface. Items are listed in descending order of magnitude of the dominant loadings for women on the final set of items selected for the SC scale.

was also eliminated because it described relatively little exploratory behavior and was considered to involve greater danger and potential for immediate harm than the other SC items. The remaining 10 items were retained for the final SC scale.

In order to verify that the 10 items selected for the SC scale would coalesce to form a single meaningful factor, the responses to these items were evaluated in separate principal axis factor analyses for women and men, which were also reported in Table 1. Inter-item correlations between the 10 SC items are reported in table in the Appendix. As expected, the eigenvalues and scree tests in the analyses of the 10 SC items indicated the presence of only one factor for both sexes. All 10 items had dominant salient loadings of .51 or greater for both women and men on this first factor; only one item ("traveling on a train like the Orient Express") had a salient dual loading.

3.1. Psychometric properties of the SC scale

Means, standard deviations, alpha reliability coefficients, and *t*-tests of gender differences for the 10-item SC scale, the other three curiosity scales, the sensation and novelty seeking subscales, and the STPI trait anxiety, anger, and depression scales are reported in Table 2. The SC scale had excellent internal consistency for both women ($\alpha = .85$) and men ($\alpha = .89$). Except for the SSS-ES subscale, for which the alphas were below .50, the internal consistency coefficients for all of the other measures were also satisfactory (*mdn* $\alpha = .835$). No significant gender differences were found for the SC scale. Men scored significantly higher than women on the EC scale, and on the NES External Cognition and SSS-TAS subscales.

3.2. Correlations of the SC scale with the other curiosity and personality measures

Pearson-product moment correlations of the SC scale with the Perceptual, Epistemic, and Trait Curiosity scales, the novelty seeking measures, and the other personality traits are reported for women and men in Table 3. Correlations of the SSS Thrill-and-Adventure Seeking and Experience Seeking subscales with these measures are also reported in this table. Significant small to moderate positive correlations, ranging from .27 to .61, were found between the SC scale and the three curiosity measures (*mdn* $r = .345$), providing evidence of convergent validity for the SC scale as an aspect of curiosity. The SC scale correlated more highly with the PC scale than with the EC and T-Curiosity scales as may be noted in Table 3, suggesting that SC was more closely associated with seeking novel perceptual experience than obtaining new knowledge or cognitive stimulation. Moderately strong correlations were also found between the SC scale with the PC, EC, and Trait Curiosity scales, ranging from .53 to .64 (not reported in Table 3).

While small to moderate correlations were found between the SC scale with both sensation seeking measures (*mdn* $r = .355$), the SC scale correlated more strongly with SSS-TAS than with SSS-ES. The moderate correlations of the SC scale with the SSS-TAS subscale (*mdn* $r = .47$) were similar in magnitude to those found between the SC and PC scales (*mdn* $r = .535$), as may be noted in Table 3. These findings suggested that SC involved both interest in seeking novel perceptual stimulation and a desire to engage in adventurous activities. Moreover, like sensation seeking, SC appears to involve the motivation to seek perceptual rather than cognitive stimulation.

The correlations of the SC scale with the other three curiosity scales were larger (*mdn* $r = .345$) than the corresponding correlations of the SSS subscale with these measures (*mdn* $r = .185$),

Table 2
Means, standard deviations, Cronbach's alpha, and *t*-tests of gender differences for the Sensory Curiosity (SC) scale, the other measures of curiosity, measures of novelty and sensation seeking, and the STPI trait scales for women and men

	Scale		Women	Men	*t*-test
Curiosity Measures	Sensory Curiosity	*M*	21.88	23.01	1.55
		SD	6.89	7.85	
		α	.85	.89	
	Perceptual Curiosity	*M*	29.34	28.36	1.89
		SD	5.28	5.65	
		α	.76	.80	
	Epistemic Curiosity	*M*	26.46	29.27	5.15*
		SD	5.76	5.67	
		α	.84	.85	
	Trait Curiosity	*M*	28.49	29.24	1.87
		SD	4.50	4.01	
		α	.75	.69	
Novelty and Sensation Seeking Measures	SSS Thrill & Adventure Seeking	*M*	5.98	7.05	4.08*
		SD	2.74	2.70	
		α	.76	.80	
	SSS Experience Seeking	*M*	5.45	5.62	.93
		SD	1.83	1.96	
		α	.40	.46	
	NES Internal Cognition	*M*	15.90	16.58	2.07
		SD	3.65	3.22	
		α	.80	.85	
	NES External Cognition	*M*	10.34	12.36	4.79*
		SD	4.76	4.74	
		α	.84	.79	
Other Personality Traits	Trait Anxiety	*M*	21.24	2.59	1.27
		SD	5.60	5.24	
		α	.84	.83	
	Trait Anger	*M*	2.51	2.42	.15
		SD	5.97	6.22	
		α	.87	.86	
	Trait Depression	*M*	17.31	16.86	.87
		SD	5.57	5.36	
		α	.90	.90	

* $p < .01$.

Table 3
Pearson-product moment correlations of the Sensory Curiosity, SSS-Thrill-and-Adventure-Seeking and SSS-Experience Seeking subscales with the other measures of curiosity, novelty seeking, and other STPI personality traits for women and men

		Sensory Curiosity		SSS-Thrill-and-Adventure-Seeking		SSS-Experience Seeking	
		Women	Men	Women	Men	Women	Men
Curiosity Measures	Sensory Curiosity			**.45**	**.49**	**.26**	**.25**
	Perceptual Curiosity	**.46**	**.61**	**.20**	**.26**	**.29**	**.33**
	Epistemic Curiosity	**.32**	**.27**	.14	.00	**.19**	.10
	Trait Curiosity	**.34**	**.35**	**.18**	.14	**.18**	**.21**
Novelty Seeking Measures	NES Internal Cognition	.08	−.11	.04	−.06	**.18**	.15
	NES External Cognition	**.17**	.13	**.17**	.06	.14	−.07
Other Personality Traits	Trait Anxiety	−.03	.07	.00	.16	.07	.02
	Trait Anger	.09	**.20**	−.02	.08	.00	.01
	Trait Depression	.05	.14	.00	.06	.10	−.10

Note: r coefficients in bold indicate that $p < .01$.

providing evidence that SC and sensation seeking are related, but may be differentiated on the basis of their correlations with other measures of curiosity. The correlations of the SC scale and both SSS subscales with the two NES cognition subscales were essentially zero, providing further evidence that both SC and sensation seeking involve relatively little interest in cognitive stimulation. The correlations of the SC scale and the two SSS subscales with the STPI trait anxiety, anger, and depression scales were also essentially zero, indicating that both SC and sensation seeking were not related to these fundamental personality traits.

4. Discussion and conclusion

The major goals of the present study were to determine if SC could be identified as a meaningful curiosity construct that differed from sensation seeking, and to develop a reliable and valid measure of SC. Fourteen experimental SC items were administered to a large sample of undergraduate students, along with measures of curiosity, and sensation and novelty seeking, and other personality traits. Factor analyses of responses to the SC items identified one strong factor for both women and men, indicating the presence of a single, relatively homogeneous, SC construct. The items with dominant salient loadings of $\geqslant .50$ for both sexes were reviewed, and the 10 items with the best psychometric properties and content that was judged to be the most relevant to the concept of SC, were selected for the scale. Additional factor analyses of the SC scale items identified a single factor, on which all 10 items had strong dominant loadings of .51 or greater for both sexes. Alpha coefficients of .85 for women and .89 for men indicated very good internal consistency for the 10-item SC scale.

Significant positive correlations of the SC scale with the perceptual, epistemic, and trait curiosity measures provided evidence of convergent validity, and also indicated that SC may be considered a component of a broader curiosity construct. The SC scale also correlated positively and significantly with the two SSS subscales, particularly with the SSS-TAS. Although both SSS subscales also correlated positively with the PC, EC, and Trait Curiosity scales, the correlations of the SC scale with the three curiosity measures were much stronger. These findings provide evidence that the SC and sensation seeking measures asses overlapping constructs, and that these constructs can be differentiated on the basis of their relationships with other curiosity measures.

An important limitation of the present study is that it did not evaluate whether the SC scale and the sensation seeking measures differentially predict tendencies to engage in exploratory behaviors that involved immediate danger, which will be important to investigate in future research. It will also be important to determine whether higher SC scores predict a stronger desire to engage in more novel exploratory behaviors, for example, traveling to exotic locales (more adventurous), as compared to familiar destinations (less adventurous). Given that the SC scale was designed to assess individual differences in seeking novel sensory experiences through adventure, another important direction for future research will be to examine the relationship of the SC scale with conceptually related constructs, such as extraversion and openness-to-experience.

In summary, the findings of the present study demonstrated that SC is a meaningful construct, which may be considered an aspect of the broader construct of curiosity. The SC scale developed in this study was comprised of items that described interest in engaging in adventurous exploratory behaviors that involved relatively little imminent danger. Small to moderate positive correlations of the SC scale with other curiosity measures demonstrated convergent validity. The SC scale also correlated more highly than the SSS and ES subscales with other measures of curiosity, which provided evidence of discriminant validity. The divergent validity of the SC scale was indicated by essentially zero correlations with anxiety, anger and depression.

Appendix A

Inter-item correlations of the 10 Sensory Curiosity (SC) scale items for women and men

		1	2	3	4	5	6	7	8	9	10
1	Rain forest		.62	.55	.61	.49	.64	.56	.68	.34	.37
2	Dog sledding	.45		.48	.48	.51	.53	.45	.50	.47	.34
3	Sailing	.49	.43		.48	.56	.52	.38	.51	.37	.36
4	Ride horse	.46	.41	.41		.52	.44	.41	.53	.46	.40
5	Desert voyage	.44	.46	.45	.40		.49	.34	.35	.48	.35
6	Camping	.53	.36	.37	.35	.34		.57	.53	.17	.35
7	Climb mountain	.52	.38	.32	.33	.32	.47		.50	.19	.33
8	Scuba diving	.49	.39	.40	.45	.23	.34	.32		.26	.45
9	Orient Express	.33	.29	.33	.36	.45	.22	.28	.20		.43
10	Ride surfboard	.30	.32	.26	.30	.32	.32	.33	.33	.39	

Notes: Inter-item *r*'s are listed below the diagonal for women and above the diagonal for men. All inter-item *r*'s are significant at $p < .01$.

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