

RESEARCH ARTICLE

The Validity and Reliability of The Turkish Version of The Social Curiosity Scale

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Abstract

Social curiosity is defined as being interested in other people's behaviors, thoughts, and feelings. This study aims to determine the validity and reliability of a Turkish version of the Social Curiosity Scale (SCS) developed by Renner. The Turkish SCS was applied to 497 university students. The retest was carried out with 243 students. Construct validity was evaluated by factor analysis. Cronbach's alpha and McDonald's omega coefficients were examined to determine the internal consistency of the scale. The intraclass correlation coefficient was calculated for the test-retest reliability. Confirmatory factor analysis was applied to evaluate the degree of consistency of the factor structure. Exploratory factor analysis revealed that Turkish SCS offers a 2-factor structure. In factor analysis, the Kaiser-Meyer Olkin value of the dataset was found to be 0.786, and the p-value for Bartlett's test was <0.001. Cronbach's alpha and McDonald's omega coefficients were 0.763 and 0.757, respectively, suggesting good internal consistency. In terms of test-retest reliability, the intraclass correlation coefficient was calculated as 0.847 (95% CI = 0.801-0.883). The obtained goodness of fit indices indicate that the two-factor model had an acceptable fit to the data. This study reveals that the Turkish SCS is a valid and reliable measurement tool for social curiosity measurement.

Keywords: Social curiosity • Validity • Reliability • Scale adaptation • Factor structure

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Curiosity can be described as an intense desire to discover, recognize and challenge new, difficult, and uncertain events. Research results indicate that curiosity fosters cognitive, social, emotional, spiritual, and physical development over the lifespan by stimulating exploratory behavior (Berlyne, 1960; Kashdan & Roberts, 2004; Loewenstein, 1994).

The theoretical foundation of curiosity can be reviewed by the distinction made by Berlyne (1954) between “epistemic” and “perceptual” curiosity. Epistemic curiosity is about complex ideas that motivate asking questions, while perceptual curiosity stems from complex or ambiguous patterns that motivate visual and sensory examination. Berlyne (1960) further distinguished between “diversive curiosity”, a general desire for knowledge, and “specific curiosity”, the desire for knowledge about a particular subject. Based on Berlyne’s theoretical conceptualization, various curiosity measures have been developed such as Epistemic Curiosity - Curiosity as a Feeling of Interest (Litman & Spielberger, 2003); Epistemic Curiosity - Curiosity as a Feeling of Deprivation (Litman & Jimerson, 2004); The Perceptual Curiosity Scale (Collins et al., 2004); The Curiosity and Exploration Inventory (Kashdan et al., 2004); The Epistemic Curiosity Scale - Interest and Deprivation (Litman, 2008; Litman et al., 2010); The Curiosity and Exploration Inventory-II (Kashdan et al., 2009); The Five-Dimensional Curiosity Scale (Kashdan et al., 2018); and The Five-Dimensional Curiosity Scale Revised (Kashdan et al., 2020).

When searching for the salient domains of curiosity, a variety of domains emerge including sensation seeking, work curiosity, social curiosity, interpersonal curiosity, science curiosity, nature curiosity, entrepreneurial curiosity, curiosity as character virtue, and career curiosity (Wagstaff et al., 2020). One of these dimensions, social curiosity, is the wish to access new information about people living in a complex society (Zhang, 2019).

As social entities, people are better off in many ways, such as physical and mental health, when they live in a cultural society compared to living alone or in isolation (Baumeister, 2005). In our changing and complex social world, in order to adapt to a cultural society, it is important to gain an understanding of the rules of conduct and knowledge about culture. There should be an innate desire to gain access to the social knowledge that needs to be acquired, to learn new information about other people in society, to learn how individuals act, their behavior patterns, and what they plan to do in the future (Hartung & Renner, 2011).

In his study, Kurtbas (2011) tried to show that curiosity is not only a psychological drive or a social stimulus but also a cultural notion and an ideological concept, thereby holding a unique role and importance in the construction of sociality. Moreover, according to Sarukkai (2009), curiosity takes its sociological importance from its

cultural dimension. It is also a historical possibility, and an ideological concept used for special purposes. In this respect, it can never be limited to an individual.

Social curiosity might serve three different motives related to social functioning: acquiring information, building and establishing relationships, and control of the social environment (Hartung & Renner, 2013). In societies with a collectivist culture, primary values are being good citizens and living according to social norms. While the subject of curiosity, which is an important predictor of social norms, is frequently researched in Western countries with individualist cultures, there are comparatively few studies on the subject in non-Western societies and countries with a communal culture (Kashdan, 2004; Kashdan & Yuen, 2007; Acun et al., 2013; Kaczmarek et al., 2014).

The social dimension of curiosity serves the sense of sociability, interpersonal attachment, and belonging. It is also the basic prerequisite for interpersonal knowledge, interest, learning, and social networks. The importance of curiosity stems from the fact that it is a sociopsychological notion rather than its individual (psychological) dimension. Despite its sociological importance, the concept of social curiosity is strangely ignored in Turkey. It is obvious that there is a lack of examination of social curiosity and its role and function as a social stimulus in daily life. This study aims to translate the original Social Curiosity Scale (SCS) developed by Renner (2006) to Turkish society to explore the applicability of SCS in Turkey and thus contribute to the development of the literature in corresponding fields of social curiosity.

Method

Study Group

The research was conducted with the participation of students studying at a university in Turkey. The necessary permissions were obtained from the Gumushane University Ethics Committee (12/6/2020 numbered 2020/06). As an online study, the nonprobability convenience sampling method was utilized to collect the sample. The required sample size was evaluated using the G-Power 3.1, with a power of 0.95, an effect size of 0.25, and a type I error of 0.05. As a result, the minimum sample size required was 197 (Faul et al., 2009). Data forms were prepared using Google Forms. The link to the online scales was shared by randomly selected department administrators, who were responsible for the distribution of the link via social media or e-mails. All participants were informed about the study before they started filling out the forms, and those who volunteered to participate in the study were asked to complete the scales. Because the scales were completed online and it was compulsory to answer each question, there were no missing data. Since the study aimed to conduct both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), at least 400 participants needed to be issued. After the intended survey period, a total of 497 participants completed the questionnaire. The

study group was randomly divided into two subgroups: the EFA sample (249 participants) and the CFA sample (248 participants). Based on the suggestions in the studies of Kaiser and Rice (1974), Mundfrom et al. (2005), and Thompson (2004), these sample sizes were considered to be adequate for the current study.

The whole sample consisted of 497 students. The ages of 93% of the students ranged between 19 and 23 in the whole sample (94% for the EFA sample and 92% for the CFA sample, respectively). The minimum age was 18, while the maximum age was 36. The percentages of females were %75.5, %75.1, and %75.8 for the whole sample, EFA sample, and CFA sample, respectively.

Instruments

The Social Curiosity Scale. The Social Curiosity Scale (SCS) was developed by Renner in 2006 to assess participants' interest in how other people behave, think, and feel. The scale consists of 10 items, rated on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree) and 2 subscales. While the first subscale, General Social Curiosity (SCS-G), is based on curiosity about other people's habits, feelings, and thinking, the second subscale, Covert Social Curiosity (SCS-C), includes an interest in learning about people through inconspicuous or hidden discovery behavior. Higher scores are indicative of greater social curiosity. In the German version of the scale, Renner reported that the scale showed good psychometric properties. Hartung and Renner (2013) conducted an English version of the scale, which exhibited satisfactory reliability with a Cronbach's alpha coefficient of 0.80 (English sample) and 0.72 (German sample), which is comparable to previous research using the German version of the SCS ($\alpha = 0.83$; Renner, 2006 and $\alpha = 0.81$; Hartung & Renner, 2011).

Curiosity and Exploration Inventory-II. Curiosity and Exploration Inventory-II (CEI-II) was developed in 2009 by Kashdan et al. The scale consists of 10 items structured around two subscales each consisting of 5 items. The first subscale, "Stretching", is individual motivation to search for knowledge and new experiences (e.g., "I actively seek as much information as I can in new situations"), and the second subscale, "Embracing", indicates willingness to embrace the novel, uncertain, and unpredictable nature of everyday life (e.g., "I prefer jobs that are excitingly unpredictable"). Persons who score high on "embracing" are those who embrace uncertainty instead of avoiding it. The response format for the CEI-II is a 5-point Likert scale with anchor points being "extremely" and "very slightly or not at all". High scores indicate a strong tendency to value curiosity. Data presented in the original article, which introduced the CEI-II, showed this instrument to be highly reliable and valid. Turkish validity and reliability study of the scale was conducted by Acun et al. (2013), which exhibited satisfactory reliability with a Cronbach's alpha coefficient of 0.82.

Positive and Negative Affect Schedule. The Positive and Negative Affect Schedule (PANAS) was developed in 1988 by Watson, Clark, and Tellegen. It is a self-administered scale to assess emotional and affect impairments. It is a brief and easy-to-administer measure to assess positive and negative effects and, thus, obtain affect descriptors that are as pure as possible. PANAS consists of two subscales: positive and negative effects. Each subscale is composed of 10 items which are rated on a 5-point Likert scale with anchor points being “extremely” and “very slightly or not at all.” Positive affect (PA) refers to the extent to which a person feels enthusiastic, active, or alert. High levels of PA indicate a state of positive engagement and low levels of PA indicate a state of sadness and lethargy. Negative affect (NA) refers to a general dimension of subjective distress, encompassing a variety of aversive mood states such as anger, contempt, disgust, fear, and nervousness. High levels of NA are defined as a state of significant distress, while low levels of NA are defined as a state of calmness. Positive and Negative effects have been related to relevant psychological constructs like social functioning, affect, and personal well-being. The scales are shown to be highly internally consistent, largely uncorrelated, and stable at appropriate levels over a 2-month time period (Watson et al., 1988). The Turkish version of PANAS was conducted by Gencoz (2000).

Procedure

Permission related to the present study was obtained from Renner via e-mail. The SCS was first translated into Turkish by a certified translator. Each translated item was reviewed by 3 public health experts to compare the original ones and to determine if there were inconsistencies, and minor changes were made. To test the clarity of the scale, a pre-test was conducted among 20 students. Based on the feedbacks, some minor modifications were made for two items. The 7th item of the original scale includes a statement about a “train journey”. Since this type of travel is not frequent in Turkey, the expression “when on the train” was switched with the expression “while traveling”. In item 9, it was thought that the “lit windows” part of the statement would not be understandable in Turkish and therefore it was changed to “windows showing interior of their houses”. An e-mail was sent to inform Renner about the changes. Following the small changes made according to the feedback, the final version of the scale was re-translated into English and sent to the author of the scale. The final scale (Table 1) was applied to 497 volunteered students. The participants were also asked to fill in the Turkish version of the CEI-II and PANAS scales, which were implemented to test the convergent and divergent (discriminant) validity of the Turkish version of the SCS. Finally, to assess the test-retest reliability, the SCS was administered to the same students 10 days after the questionnaire. The number of students who participated in the retest procedure was 243.

Table 1

Translation of Social Curiosity Scale Items

1. "When I meet a new person, I am interested in learning more about him/her."
1. Yeni biriyle tanıştığımda onun hakkında daha fazla şey öğrenmek isterim.
2. "I'm interested in people."
2. İnsanlarla ilgilenirim.
3. "I find it fascinating to get to know new people."
3. Yeni insanlar tanımayı büyüleyici bulurum.
4. "I like to learn about the habits of others."
4. Başkalarının alışkanlıklarını öğrenmek hoşuma gider.
5. "I like finding out how others work."
5. Başkalarının nasıl çalıştığını öğrenmek hoşuma gider.
6. "When other people are having a conversation, I like to find out what it's about."
6. Diğer insanlar sohbet ederken, bunun ne hakkında olduğunu öğrenmek isterim.
7. "When on the train, I like listening to other people's conversations."
7. Seyahat ederken başkalarının konuşmalarını dinlemeyi severim.
8. "Every so often I like to stand at the window and watch what my neighbors are doing."
8. Sık sık pencerede durmayı ve komşularımın neler yaptığını izlemeyi severim.
9. "I like to look into other people's lit windows."
9. İnsanların evinin içini gösteren pencerelerine bakmayı severim.
10. "When people quarrel, I like to know what's going on."
10. İnsanlar kavga ettiğinde neler olduğunu bilmek isterim.

Statistical Analysis

Statistical analyses were carried out using IBM SPSS Statistics 23.0 (IBM Corp., Armonk, New York, USA). The Lisrel 8.50 program was used in confirmatory factor analysis. In all statistical analyses, a p-value less than 0.05 (typically ≤ 0.05) was regarded as statistically significant.

Construct validity was evaluated by the use of factor analysis (principal component analysis (PCA) for factor extraction). Scale compatibility was evaluated using the Kaiser-Meyer-Olkin test and Bartlett's test of sphericity. To assess the model fit, χ^2/df ratio and among the fit indices, the comparative fit index (CFI), root mean square error of approximation (RMSEA), goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) were used. Half of the study group (248 participants) was randomly selected, and the responses of these participants were used to perform an explanatory factor analysis. Confirmatory factor analysis was performed on the second half of the study group.

In terms of convergent and divergent validity, Pearson correlations were computed between the SCS, SCS-G, SCS-C, CEI-II, and PANAS.

The reliability of the SCS was evaluated through Cronbach's Alpha (α) and McDonald's Omega (ω) (McDonald, 1999) coefficients. Although there are no universally accepted cutoff values exist for these coefficients, scores between 0.7 and

0.8 are considered acceptable, and values over 0.8 are evidence of high consistency (Nunnally & Bernstein, 1994; Bland & Altman, 1997; Reise et al., 2013). Item-total correlations were examined. Intraclass correlation coefficients (ICC) (point estimate and 95% confidence interval (CI)) were calculated to obtain the test-retest reliability, which was based on a 2-way mixed effects model with the absolute agreement (Koo & Li, 2016). The reference values of the ICC are categorized as the following < 0.5 , 0.5 to < 0.75 , 0.75 to < 0.9 , and > 0.90 which indicates poor, moderate, good, and excellent reliability, respectively, based on 95% CI (Portney & Watkins, 2009).

Results

The study was carried out with the participation of 497 students, and SCS was reapplied to 243 of them. The mean ages of the participants were 20.91 ± 1.93 , 20.86 ± 1.96 , and 20.96 ± 1.90 for the whole sample, EFA sample, and CFA sample, respectively.

When the scores obtained from the SCS were analyzed, it was determined that the scores ranged between 10 and 40, and the mean score was 23.2 ± 5.2 . When compared in terms of gender, it was observed that the minimum and maximum scores taken from the scale were the same for both genders. The results of the t-test analysis showed that there was not any significant difference between the total scores of the male and female participants ($p = 0.395$; men, 23.58 ± 0.53 vs. women, 23.11 ± 0.26). When the distribution of the responses was analyzed, it was found that the participants mostly responded above the average value of 2 (“I agree” and “I strongly agree”). The mean values of items 7, 8, and 9 were below 2. It is known that if items of the scale measure the same underlying dimension, then the items are expected to be correlated with each other. As a rule of thumb, if any items have many correlations below approximately 0.3, then excluding them from the analysis might be an option. Nevertheless, as stated by Field et al. (2012), every data is different, and analyzing data really is a skill, and not a matter of following a recipe. Based on this point, although all the correlations in Table 2 were not above 0.3, it was observed that items 1-5 and items 6-10 had relatively high correlations among themselves. Therefore, a good initial guess could be made that the scale might have a two-factor structure. Moreover, when looking for the signs of multicollinearity in the correlation matrix (Table 2), it was observed that none of the correlations were above 0.8, which suggested that multicollinearity was not a concern prior to the factor analysis (Cohen et al., 2018; Field et al., 2012).

Table 2
Summary of Correlations, Means, and Standard Deviations for the Responses of the 10 Items of the First Completion of the Questionnaire (n = 497)

Item	1	2	3	4	5	6	7	8	9	10
1	1									
2	0.384**	1								
3	0.324**	0.467**	1							
4	0.293**	0.405**	0.453**	1						
5	0.297**	0.371**	0.442**	0.528**	1					
6	0.224**	0.229**	0.277**	0.286**	0.356**	1				
7	0.126**	0.046	0.189**	0.165**	0.201**	0.368**	1			
8	0.034	0.080	0.186**	0.128**	0.163**	0.326**	0.384**	1		
9	-0.014	-0.067	0.103*	0.076	0.049	0.230**	0.351**	0.462**	1	
10	0.145**	0.124**	0.157**	0.161**	0.149**	0.338**	0.250**	0.313**	0.252**	1
M	3.11	2.93	2.44	2.41	2.73	2.37	1.78	1.75	1.33	2.37
SD	0.86	0.84	0.95	0.97	0.97	1.07	0.99	0.96	0.70	1.02

*p < 0.05; **p < 0.01; ***p < 0.001; M: Mean, SD: Standard Deviation

Exploratory Factor Analysis

Factor analysis with principal components extraction was used to examine whether the statements represent identifiable factors related to social curiosity. Half of the study group (248 participants) was randomly selected and the responses of these participants were used to perform an explanatory factor analysis. Confirmatory factor analysis was performed on the second half of the study group. Prior to the factor extraction, two statistical measures were used to assess the factorability of the data: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The KMO index measures the sampling adequacy which ranges from 0 to 1, with 0.6 suggested as the minimum value for satisfactory factor analysis to proceed (Kaiser, 1974; Tabachnick & Fidell, 1996). In the present study, the KMO value of the dataset was found as 0.786, which indicated that the sampling was adequate. Bartlett’s test of sphericity (Bartlett, 1954) tests the null hypothesis that the variables are orthogonal. That is, the variables are unrelated and therefore unsuitable for structure detection. For the social curiosity data, the calculated p-value of Bartlett’s test was < 0.001 ($\chi^2 = 563.051$, $df = 45$), which was small enough to reject the null hypothesis and conclude that the factor analysis might be worthwhile for the dataset.

Dimensionality reduction (factor extraction) was carried out via PCA. Kaiser’s criterion (eigenvalue criterion) was used to determine the number of initial unrotated factors to be extracted. Two of the eigenvalues were greater than 1 (2.675 and 2.425), suggesting the presence of two factors (Pallant, 2020). Factors obtained in the initial

extraction phase were a little difficult to interpret because of a few cross-loadings. The Varimax method (Kaiser, 1958), one of the orthogonal (uncorrelated) factor rotation approaches, was used to minimize the number of variables that had high loadings on each factor. The rotated factor loadings, eigenvalues of two factors, and variance amounts explained by the two factors are reported in Table 3. Factor 1 was defined by 5 items with dominant loadings of 0.64 or greater. Factor 2 is also comprised of 5 items with dominant loadings of 0.58 or greater. Comrey and Lee (1992) suggest that loadings in excess of 0.55 (30% overlapping variance) are considered good. However, in the current factor analysis, it was observed that there was a potential cross-loading issue (i.e., split loadings, when an item loads at 0.32 or higher on two or more factors (Costello & Osborne, 2005)) for Item 6. As stated by Yong and Pearce (2013), depending on the design of the study, a complex variable (i.e., an item that is in the situation of cross-loading) can be retained with the assumption that it is the latent nature of the variable. Taking into this fact and considering the factor designs obtained in the previous studies using SCS (Renner (2006); Hartung & Renner (2013); Zhang (2019)), Item 6 was decided to be retained under the Covert Social Curiosity subscale. That is, an equal number of measured variables were correlated with each factor, whereby all measured variables were appreciably correlated with only one factor, which indicated a simple structure (Thompson, 2004). The two factors appeared to correspond to General and Covert Social Curiosity, and together explained 51% of the item variance.

Table 3
Factor Analysis Results: Factor Loadings, Eigenvalues of Two Factors and Variance Amounts Explained by the Two Factors

Item	Factor 1	Factor 2
General Social Curiosity		
Item 2	0.788	-0.123
Item 3	0.720	0.155
Item 5	0.708	0.193
Item 4	0.704	0.174
Item 1	0.644	-0.112
Covert Social Curiosity		
Item 8	0.044	0.766
Item 9	-0.153	0.702
Item 7	0.020	0.687
Item 6	0.298	0.644
Item 10	0.102	0.584
Eigenvalues	2.675	2.425
% of variances	26.753%	24.255%
Cumulative % of variance	26.753%	51.008%

Confirmatory Factor Analysis

To secure the two-factorial structure of the SCS, a confirmatory factor analysis (CFA) using maximum likelihood (ML) estimation was performed on the second half of the study group (248 participants). Several goodness of fit indices were examined, including normed chi-square ($NC = \chi^2/df$), comparative fit index (CFI), normed fit index (NFI), goodness of fit index (GFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). According to Hu and Bentler (1999), for the ML method, a cutoff value close to 0.95 for CFI; a cutoff value close to 0.08 for SRMR; and one close to 0.06 for RMSEA are needed before it can be concluded that there is a good fit between the hypothesized model and the observed data. Moreover, a cutoff value close to 0.90 for NFI (Bentler & Bonett, 1980) and a normed chi-square value of less than 5 (Schumacker & Lomax, 2004) are desired for a good model fit. In the present study, the results of CFA, shown in Table 4, indicated that the two-factor model had an acceptable fit to the data, $NC = 2.58$, $RMSEA = 0.080$, $CFI = 0.90$, $NFI = 0.85$, $GFI = 0.93$, $SRMR = 0.069$.

Table 4
Fit Index Results in Confirmatory Factor Analysis

Model	χ^2	df	χ^2/df	NFI	GFI	CFI	RMSEA	SRMR
	87.748***	34	2.58	.85	.93	.90	.080	.069

n = 248. df = degree of freedom; NFI = normed fit index; GFI = goodness of fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual. ***p < 0.001.

The standardized factor loadings for the two-factor social curiosity model were presented in Figure 1. As expected, the standardized factor loadings were relatively high, ranging in magnitude from 0.48 to 0.71. All factor loadings were significant, indicating convergent validity ($p < 0.001$). The inter-factor correlation was moderate in size ($r = 0.58$), which suggested discriminant validity.

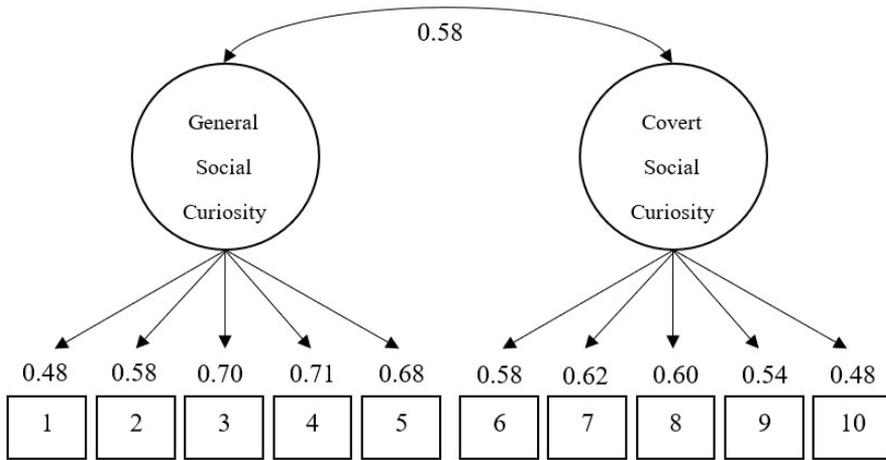


Figure 1. Standardized Factor Loadings for Two-Factor SCS

Construct Validity of the SCS and Subscales

To examine construct validity, correlations were computed between the SCS, SCS-G, SCS-C, CEI-II and PANAS (see Table 5). SCS was highly correlated with general subscale ($r = 0.84$, $p < 0.001$) and covert subscale ($r = 0.849$, $p < 0.001$). As in the German version of the SCS, the high correlations were expected due to the overlap of the items. The moderate correlation of 0.58 between the SCS-G and SCS-C is consistent with the assumption that these two subscales assess substantially related but meaningfully different components (Renner, 2006).

One caveat when interpreting the correlations is that most of the correlation values in Table 5 are small albeit significant due to the effect of the sample size on the p-values. Therefore, interpreting the low correlation values should be handled carefully. Cohen (1988) suggests that the interpretation of the effect size is relative to the area of behavioral science or even more particularly to the specific content and research method being employed in any given investigation. In this perspective, based on the analysis of correlation coefficients from two meta-analyses, Hemphill (2003) recommends categorizing $r < 0.20$ as small, r from 0.20 to 0.30 as medium, and $r > 0.30$ as large effects for experiments. Moreover, Gignac and Szodorai (2016), who analyzed the empirical distribution of meta-analytically derived correlations in the area of differential psychology, reported that fewer than 3% of the considered correlations were found to be as large as $r = 0.50$.

The significant positive correlations of the SCS with the selected trait curiosity scale (CEI-II) and its subscales, ranging from $r = 0.202$ to 0.267, provided evidence of convergent validity. The SCS-G was the major subscale that contributed to these

correlations. As seen in Table 5, the correlations of the SCS-G with the CEI scale were all equal to or greater than 0.26. SCS-G reflects generalized curiosity toward other people’s thoughts and feelings. Interest in getting to know people from different cultures and learning about their life fall within this subscale. On the other hand, SCS-C reflects a desire to learn more about personal information or to seek out information surreptitiously. Compared to the CEI-II, the SCS measures more passive or neutral information-seeking tendencies rather than emphasizing the compelling and exploratory nature of curiosity (Cairo, 2013). From this point of view, the moderate correlation found between SCS-G and CEI-II was as expected. In contrast to SCS-G, the SCS-C seemed to assess a distinct component of social curiosity by having small or nonsignificant correlations with CEI and its subscales. The correlations of the SCS and the SCS-G with Negative Affect subscale of PANAS were essentially zero, which provided evidence of discriminant validity. Only the subscale SCS-C showed a slightly significant small positive correlation with Negative Affect ($r = 0.121$), suggesting that negative affectivity is associated with some degree of covert social curiosity. According to the findings of Renner (2006), SCS-C is associated with higher neuroticism and social anxiety, supporting the notion that people may still experience curiosity and seek novel information when feeling anxious or upset, but this cognitive engagement may take a more passive or surreptitious form. Taking into consideration that the Negative Affect subscale of PANAS describes different negative feelings and emotions, such as nervousness and sadness, the correlation between the Negative Affect subscale and SCS-C subscale is plausible.

Table 5
Convergent and Divergent (Discriminant) Validity Results

	SCS	SCS-G	SCS-C
Social Curiosity			
SCS-G	0.840***		
SCS-C	0.849***	0.459***	
Curiosity and Exploration Inventory-II			
Stretching	0.202**	0.269***	0.071
Embracing	0.260***	0.265***	0.172**
Total	0.267***	0.306***	0.143*
Positive Affect Negative Affect Scale			
Positive	0.175**	0.250***	0.038
Negative	0.069	-0.028	0.121

n = 248. SCS = Social Curiosity Scale; SCS-G = SCS-General; SCS-C = SCS-Covert; *p < 0.05; **p < 0.01; ***p < 0.001

Reliability Analysis

Using the whole sample, the reliability of the SCS was evaluated through Cronbach's Alpha (α) and McDonald's Omega (ω) (McDonald, 1999) coefficients. In terms of the first test, both Cronbach's alpha and McDonald's Omega coefficients were similar and over 0.70 for the SCS and its subscales (See Table 6). Correlations of each item with overall scale, and the intraclass correlations of the scale items were all statistically significant ($p < 0.001$). Deletion of an item from the scale did not make an improvement on the current Cronbach's alpha. In terms of internal consistency, the results were satisfactory. The test-retest ICC value for the SCS was calculated as 0.847 (95% CI = 0.801 - 0.883) (subscales: SCS-G: 0.839, SCS-C: 0.734), proving that the reliability of the Turkish version of the SCS can be considered as "good" (Portney & Watkins, 2009).

Table 6
Indices for the Reliability of the SCS

Scales/ Subscales	Cronbach's Alpha ^a	McDonald's Omega ^a	Test-Retest ICC ^b	95% Confidence Interval for ICC	
				Lower Bound ^b	Upper Bound ^b
SCS	0.763	0.757	0.847	0.801	0.883
SCS-G	0.767	0.773	0.839	0.793	0.875
SCS-C	0.701	0.701	0.734	0.657	0.794

^a: n = 497; ^b: n = 243. SCS = Social Curiosity Scale; SCS-G = SCS-General; SCS-C = SCS-Covert; ICC: Intraclass Correlation Coefficient

Discussion

Research on curiosity has revealed that different conceptualizations of curiosity tend to emphasize different aspects, and therefore curiosity is better grasped as a multifaceted construct (Kashdan et al., 2018). One of these facets, social curiosity, was studied by Renner (2006), who developed an assessment tool to measure individual differences in social curiosity as a personality trait. The original form of the constructed scale (SCS) was written in German and applied to 312 German participants. Based on the good psychometric properties obtained from the study, the scale was adapted to English by Hartung and Renner (2013) and reported to be reliable. In recent years, the validity and reliability analysis of the Chinese version of the scale was made by Zhang (2019), who also showed that the Chinese version of the SCS can be used as an effective tool to measure social curiosity among Chinese university students. Up to now, there has been little research on social curiosity in Turkey, primarily due to the lack of measurement tools on this subject. The main goal of this study was to translate the English form of the SCS to the Turkish language and to conclude its validity and reliability.

One of the main differences among the studies carried out using German, English, Chinese and Turkish versions of the scale is the study group. In the studies of Renner

(2006) and Hartung and Renner (2013), participants between the ages of 16 and 77 were recruited, while in the Chinese study carried out by Zhang (2019), the study group consisted of university students whose ages ranged from 18 to 23. Based on this fact, conclusions regarding the age factor could be drawn in the studies conducted using the German and English versions of the scale. However, a similar deduction could not be made in the Chinese study since its focus group was university students. In this regard, the current study resembles the Chinese study. The impact of the age factor on the validity and reliability of the scale could not be investigated due to the study group limitation. Moreover, although the gender effect was not investigated in any of the studies of the scale, the percentage of women was higher in all studies. Considering that 75.5% of the participants were women in the current study, it can be inferred that the values in the psychometric indicators of the scale mostly represent the social curiosity tendencies of women.

In the German form of the SCS (Renner, 2006), the principal axis factor analysis yielded two substantially correlated factors which were entitled General Social Curiosity and Covert Social Curiosity. The same factor structure was obtained both in the English (Hartung & Renner, 2013) and Chinese versions (Zhang, 2019) of the scale. In the present study, exploratory factor analysis revealed that the Turkish version of the scale was also two-dimensional. As in the original scale, the first 5 items were collected under the general and the second 5 items under the covert sub-dimension. This form of the SCS was used to examine the impact of social curiosity on the utilization of social information and the accuracy of personality judgments (Hartung & Renner, 2011), to examine the interrelations between social curiosity and gossip (Hartung & Renner, 2013), and to demonstrate the benefits of social curiosity to reduce or overcome the anxiety of death (Fitri et al., 2020). On the other hand, Kashdan et al. (2018) developed a five-dimensional, non-hierarchical measure of curiosity, the five-dimensional curiosity scale (5DC). The scale consisted of five curiosity facets entitled Joyous Exploration (JE), Deprivation Sensitivity (DS), Stress Tolerance (ST), Thrill Seeking (TS), and Social Curiosity (SC). In 5DC, social curiosity emerged as a subscale and consisted of 5 items similar to the ones in the scale of Renner (2006). In 2020, based on the studies of Renner (2006) and Litman and Pezzo (2007), Kashdan et al. further refined the 5DC inventory by splitting the SC facet into two separate facets: Overt Social Curiosity (including 4 items similar to the SCS-G items) and Covert Social Curiosity (including 4 items similar to the SCS-C items). By doing so, they distinguished between two types of social curiosity: the overt desire to learn from other people versus covert, surreptitious interest in what other people say and do.

For evidence of the construct validity of the SCS, confirmatory factor analysis (CFA) using maximum likelihood (ML) estimation was conducted. The results of CFA (see Table 4) indicated that the two-factor model had an acceptable fit to the data, $NC =$

2.58, RMSEA = 0.080, CFI = 0.90, NFI = 0.85, GFI = 0.93, SRMR = 0.069. The inter-factor correlation was moderate in size ($r = 0.58$) and consistent with the correlation found between SCS-G and SCS-C ($r = 0.41$) in the German version of the scale. The obtained inter-factor correlation was anticipated since the two subscales assess substantially related but meaningfully different components of an underlying social curiosity dimension (Renner, 2006).

To examine convergent and divergent validity, correlations were computed between the SCS, SCS-G, SCS-C, CEI-II and PANAS (see Table 5). Prior research showed that SCS has moderately high correlations with other measures of curiosity and self-perceived curiosity, but low correlations with some personality traits, such as neuroticism and agreeableness (Renner, 2006). Also, studies have revealed that curiosity is related to positive effects and lower negative effects (Gallagher & Lopez, 2007; Kashdan et al., 2004). Assertive people take interest in knowing others' minds, feelings, and behavior, which can provide a positive affect (Fitri & Wielyanida, 2018). Curiosity itself has a correlation with positive affect (Quevedo & Abella, 2011). Based on these studies, we expected significant positive correlations between SCS and the selected trait curiosity scale (CEI-II), and the Positive Affect subscale of PANAS as evidence of convergent validity. As seen in Table 5, correlations of the SCS with the selected trait curiosity scale (CEI-II) and its subscales ranged from 0.202 to 0.267, whereas only the correlations of the SCS and the SCS-G with the Positive Affect subscale of PANAS were statistically significant ($r = 0.175$ and $r = 0.250$, respectively). The obtained associations can be interpreted as moderate based on the effect size guidelines proposed by Gignac & Szodorai (2016): relatively small effects ($r \geq 0.10$), typical (medium) effects ($r \geq 0.20$), and relatively large effects ($r \geq 0.30$). In the study of Kashdan et al. (2018), the correlations between SCS and the subscales of CEI-II were both 0.21, which is also consistent with the results of the present study. The correlations of the SCS and the SCS-G with the Negative Affect subscale of PANAS were essentially zero. A similar result was found in the study of Gallagher and Lopez (2007), who found a correlation of 0.50 between exploration curiosity and positive affect and only -0.28 between exploration curiosity and negative affect. In the present study, only the subscale SCS-C showed a slightly significant ($p = 0.058$) small positive correlation with Negative Affect ($r = 0.121$), suggesting that negative affectivity is associated with some degree of covert social curiosity. Interestingly, when the scores obtained from the scale were examined (Table 2), it was seen that the scores obtained from the SCS-C scale were lower than the SCS-G. It is thought that the scores in the SCS-C subscale might be low due to the fact that the questions of this scale represent behaviors frowned upon in Turkish culture. This decline was particularly noticeable in item 9.

Reliability of the SCS was evaluated through Cronbach's Alpha (α) and McDonald's Omega (ω) coefficients. In terms of the first test conducted on 497 participants, both

Cronbach's alpha and McDonald's Omega coefficients were similar and over 0.70 for the SCS and its subscales, suggesting that the reliability of the Turkish SCS was satisfactory. In the English version of the scale (Hartung & Renner, 2013), Cronbach's alpha coefficients were 0.80 (English sample) and 0.72 (German sample), whereas in the German version of the SCS, the coefficients were 0.83 (Renner, 2006) and 0.81 (Hartung & Renner, 2011). In terms of test-retest reliability, the stability of assessments over time was examined via the ICC method. The ICCs for all scales tested for test-retest reliability were good (ICC scores (95% CI); SCS: 0.847 (0.801-0.883), SCS-G: 0.839 (0.793-0.875), SCS-C: 0.734 (0.657-0.794)). Based on these findings, it is concluded that the Turkish SCS demonstrates satisfactory internal consistency. In conclusion, this study suggests that Turkish SCS, with its two-factor structure, is a valid and reliable scale. Local or national-based research on social curiosity can be conducted using the SCS.

Study Limitations

The high number of samples in the test and retest was the biggest strength of the study. On the other hand, in Turkey, due to the Covid-19 pandemic, universities were obliged to carry out online classes at the time of lockdown. Due to this limitation, the study was conducted over the internet based on the participation of volunteering students. Since the ages of the focused study group ranged between 18 and 36, no conclusion could be drawn in terms of the impact of the age factor on the validity and reliability of the scale.

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References

- Acun, N., Kapikiran, S., & Kabasakal, Z. (2013). Trait curiosity and exploration inventory-II: Exploratory and confirmatory factor analysis and its reliability. *Turkish Psychological Articles*, 16(31), 86–90.
- Bartlett, M. S. (1954). A note on the multiplying factors for various chi square approximation. *Journal of Royal Statistical Society, Series B*, 16(2), 296–298.
- Baumeister, R. F. (2005). *The cultural animal: Human nature, meaning, and social life*. Oxford University Press.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588. <https://doi.org/10.1037/0033-2909.88.3.588>

- Berlyne, D. E. (1954). A theory of human curiosity. *British Journal of Psychology*, 45(3), 180–191. <https://doi.org/10.1111/j.2044-8295.1954.tb01243.x>
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. McGraw-Hill.
- Bland, J. M., & Altman, D. G. (1997). Statistics notes: Cronbach's alpha. *BMJ*, 314(7080), 572. <https://doi.org/10.1136/bmj.314.7080.572>
- Cairo, A. H. (2013). *Curiosity and compassion: Curiosity and attachment security's relationship with empathic responding to hardship* (Master's thesis). Retrieved from <https://scholarscompass.vcu.edu/cgi/viewcontent.cgi?article=4860&context=etd>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.
- Collins, R. P., Litman, J. A., & Spielberger, C. D. (2004). The measurement of perceptual curiosity. *Personality and Individual Differences*, 36, 1127–1141. [https://doi.org/10.1016/S0191-8869\(03\)00205-8](https://doi.org/10.1016/S0191-8869(03)00205-8)
- Comrey, A. L., & Lee, H. B. (1992). *Interpretation and application of factor analytic results* (2nd ed.). Lawrence Erlbaum
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, 10(1), 7. <https://doi.org/10.7275/jyj1-4868>.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>.
- Field, A., Miles, J., & Field, Z. (2012). *Discovering Statistics Using R*. Sage Publications.
- Fitri, R. A., & Wielyanida, L. (2018). The Correlation between Personality Trait and Social Curiosity. *Proceedings of the 3rd International Conference on Social Sciences, Laws, Arts and Humanities* (pp. 92–98). <https://doi.org/10.5220/0010003100920098>.
- Fitri, R. A., Asih, S. R., & Takwin, B. (2020). Social curiosity as a way to overcome death anxiety: Perspective of terror management theory. *Heliyon*, 6(3), e03556. <https://doi.org/10.1016/j.heliyon.2020.e03556>
- Gallagher, M. W., & Lopez, S. J. (2007). Curiosity and well-being. *The Journal of Positive Psychology*, 2(4), 236–248. <https://doi.org/10.1080/17439760701552345>
- Gencoz, T. (2000). Positive and negative affect schedule: A study of validity and reliability. *Turkish Journal of Psychology*, 15(46), 19–28.
- Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74–78. <https://doi.org/10.1016/j.paid.2016.06.069>
- Hartung, F. M., & Renner, B. (2011). Social curiosity and interpersonal perception: A judge × trait interaction. *Personality and Social Psychology Bulletin*, 37(6), 796–814. <https://doi.org/10.1177/0146167211400618>
- Hartung, F. M., & Renner, B. (2013). Social curiosity and gossip: Related but different drives of social functioning. *PLoS One*, 8(7), e69996. <https://doi.org/10.1371/journal.pone.0069996>
- Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist*, 58(1), 78–79. <https://doi.org/10.1037/0003-066X.58.1.78>

- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. *Psychometrika*, 23(3), 187–200.
- Kaiser, H. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31–36.
- Kaiser, H. F., & Rice, J. (1974). Little jiffy, mark IV. *Educational and Psychological Measurement*, 34(1), 111–117.
- Kashdan, T. B. (2004). Curiosity. In C. Peterson & M. E. P. Seligman (Eds.), *Character strengths and virtues: A handbook and classification* (pp. 125–141). Oxford University Press.
- Kashdan, T. B., & Roberts, J. E. (2004). Trait and state curiosity in the genesis of intimacy: Differentiation from related constructs. *Journal of Social and Clinical Psychology*, 23(6), 792–816. <https://doi.org/10.1521/jscp.23.6.792.54800>
- Kashdan, T. B., Rose, P., & Fincham, F. D. (2004). Curiosity and exploration: Facilitating positive subjective experiences and personal growth opportunities. *Journal of Personality Assessment*, 82(3), 291–305. https://doi.org/10.1207/s15327752jpa8203_05
- Kashdan, T. B., & Yuen, M. (2007). Whether highly curious students thrive academically depends on perceptions about the school learning environment: A study of Hong Kong adolescents. *Motivation and Emotion*, 31(4), 260–270. <https://doi.org/10.1007/s11031-007-9074-9>
- Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., & Steger, M. F. (2009). The curiosity and exploration inventory-II: Development, factor structure, and psychometrics. *Journal of Research in Personality*, 43(6), 987–998. <https://doi.org/10.1016/j.jrp.2009.04.011>
- Kashdan, T. B., Stikma, M. C., Disabato, D. J., McKnight, P. E., Bekier, J., Kaji, J., & Lazarus, R. (2018). The five-dimensional curiosity scale: Capturing the bandwidth of curiosity and identifying four unique subgroups of curious people. *Journal of Research in Personality*, 73, 130–149. <https://doi.org/10.1016/j.jrp.2017.11.011>
- Kashdan, T. B., Disabato, D. J., Goodman, F. R., & McKnight, P. E. (2020). The Five-Dimensional Curiosity Scale Revised (5DCR): Briefer subscales while separating overt and covert social curiosity. *Personality and Individual Differences*, 157, 109836. <https://doi.org/10.1016/j.paid.2020.109836>
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine*, 15(2), 155–163. <https://doi.org/10.1016/j.jcm.2016.02.012>
- Kurtbas, İ. (2011). The sociology of curiosity: “social curiosity” as psychological impulse, social stimulus, cultural notion and an ideological concept. *Journal of Sociological Research*, 14(2), 18–58.
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin*, 116(1), 75–98. <https://doi.org/10.1037/0033-2909.116.1.75>
- Litman, J. A., & Spielberger, C. D. (2003). Measuring epistemic curiosity and its diversive and specific components. *Journal of Personality Assessment*, 80(1), 75–86. https://doi.org/10.1207/S15327752JPA8001_16

- Litman, J. A., & Jimerson, T. L. (2004). The measurement of curiosity as a feeling of deprivation. *Journal of Personality Assessment*, 82(2), 147–157. https://doi.org/10.1207/s15327752jpa8202_3
- Litman, J. A., & Pezzo, M. V. (2007). Dimensionality of interpersonal curiosity. *Personality and Individual Differences*, 43(6), 1448–1459. <https://doi.org/10.1016/j.paid.2007.04.021>
- Litman, J. A. (2008). Interest and deprivation dimensions of epistemic curiosity. *Personality and Individual Differences*, 44(7), 1585–1595. <https://doi.org/10.1016/j.paid.2008.01.014>
- Litman, J. A., Crowson, H. M., & Kolinski, K. (2010). Validity of the interest- and deprivation-type epistemic curiosity distinction in non-students. *Personality and Individual Differences*, 49(5), 531–536. <https://doi.org/10.1016/j.paid.2010.05.021>
- McDonald, R. P. (1999). *Test theory: A unified treatment*. L. Erlbaum Associates.
- Mundfrom, D. J., Shaw, D. G., & Ke, T. L. (2005). Minimum sample size recommendations for conducting factor analyses. *International Journal of Testing*, 5(2), 159–168.
- Nunnally, J. C. (1994). *Psychometric theory 3E*. Tata McGraw-Hill Education.
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th Edition). Routledge.
- Portney, L.G., & Watkins, M.P. (2009). *Foundations of clinical research: Applications to practice*. Prentice Hall.
- Quevedo, R. J. M., & Abella, M. C. (2011). Well-being and personality: Facet-level analyses. *Personality and Individual Differences*, 50(2), 206–211. <https://doi.org/10.1016/j.paid.2010.09.030>
- Reise, S. P., Bonifay, W. E., & Haviland, M. G. (2013). Scoring and modeling psychological measures in the presence of multidimensionality. *Journal of Personality Assessment*, 95(2), 129–140. <https://doi.org/10.1080/00223891.2012.725437>
- Renner, B. (2006). Curiosity about people: The development of a social curiosity measure in adults. *Journal of Personality Assessment*, 87(3), 305–316. https://doi.org/10.1207/s15327752jpa8703_11
- Sarukkai, S. (2009). Science and the ethics of curiosity. *Current Science*, 97(6), 756–767.
- Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling*. Psychology Press.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). Harper Collins.
- Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. American Psychological Association
- Wagstaff, M. F., Flores, G. L., Ahmed, R., & Villanueva, S. (2021). Measures of curiosity: A literature review. *Human Resource Development Quarterly*, 32(3), 363–389. <https://doi.org/10.1002/hrdq.21417>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scale. *Journal of Personality and Social Psychology*, 54(6), 1063–1070. <https://doi.org/10.1037//0022-3514.54.6.1063>
- Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2), 79–94. <https://doi.org/10.20982/tqmp.09.2.p079>
- Zhang, Y. (2019). Reliability and validity of the Social Curiosity Scale among Chinese university students. *Social Behavior and Personality: An International Journal*, 47(9), 1–7. <https://doi.org/10.2224/sbp.8263>

