Imagination as a facet of Openness/Intellect: A new scale differentiating experiential simulation and conceptual innovation

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Abstract

Previous research has investigated the nature of imagination as a construct related to multiple forms of higher-order cognition. Despite the emergence of various conceptualizations of imagination, few attempts have been made to explore the structure of imagination as a trait in the context of existing hierarchically-nested personality dimensions. We present a scale for measuring trait imagination that distinguishes between *experiential simulation* and *conceptual innovation*, aligned with the two major subfactors (aspects) of the Big Five dimension Openness/Intellect. Across two large samples, we provide evidence of a consistent factor structure distinguishing experiential, conceptual, and general descriptions of imagination, as well as validity as measures of facets of Openness and Intellect. Our findings provide a measure of major forms of imagination in line with mainstream models of the hierarchical structure of personality.

Keywords: Imagination, Openness/Intellect, Experiential Simulation, Conceptual Innovation

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Imagination has long been regarded as a fundamental component of human experience. Various philosophical treatments have characterized imagination as among the most defining and pervasive elements of our cognition, loosely converging on the consensus of imagination as the generative capacity to produce novel ideas and experiences within or beyond the limits of reality (Descartes, 1642; Kant, 1781; Strawson, 1970; Stevenson, 2003). This capacity for modulating information between actuality and possibility has been suggested as a fundamental feature of human conscious experience, by permitting a greater capacity to generate hypothetical states that can be reconciled with current conscious states (DeYoung, 2015a, 2015b; Safron, in review) and to navigate the pervasive ambiguities of language, symbolism, and complex social behavior (Bronowski, 1979; Carruthers, 2002; Walton, 1990). The involvement of imagination in creative processes makes it a crucial component of cultural evolution through art, philosophy, and scientific innovation (Feist, 1998), but it is similarly influential in its contributions to everyday problem solving and future planning (Jing et al., 2016; Schacter, 2012).

The sheer scope of human behavior that is modulated by imaginative capabilities is evident in early psychological research. This empirical work has helped to distinguish between the characterization of imagination as a universal human capacity and imagination as a dimension of variability in this capacity. Early reports of variability in imagination has been presented in the context of other consequential psychological phenomena including memory, empathy, and features of sensation and perception (Galton, 1880; Markey, 1935). More recent behavioral and psychometric research has elaborated extensively on this variability, with the role of individual differences in imagination often being incorporated in discussions of related elements of higher-order cognition, including mental imagery (Dijkstra et al., 2021; Pearson, 2019), creativity (Jankowska & Karwowski, 2015; Runco et al., 2011; Guilford, 1951) and divergent thinking (Addis et al., 2016). This evidence supports the interpretation of imagination as a trait reflecting unique variability in the broad cognitive mechanisms that influence the capacity for complex information processing in general (DeYoung, 2015b).

The growing body of literature characterizing imagination through the perspective of individual differences has repeatedly contended with identifying the factor structure of various aspects of imagination. This approach has led to the investigation of individual variation in behaviors relating to fantasy, thoughtfulness, and daydreaming (Singer & Antrobus, 1963; Naylor & Simonds, 2015), as well as absorption and hypnotic experiences (Tellegen & Atkinson, 1974). Additional research has characterized imagination through multiple different dimensions including imaginative capability (Liang & Chia, 2014) and cultural contributions (Feng et al., 2017), as well as aspects relevant to personality traits and other associated cognitive abilities (von Stumm & Scott, 2019).

One recent scale assessing multiple dimensions of imagination is the Four-Factor Imagination Scale (FFIS; Zabelina & Condon, 2020). This scale recognizes four empirically-derived dimensions corresponding to individual differences in frequency, complexity, emotional valence, and directedness of imagination. The dimensions of the FFIS have been validated across multiple samples, and exhibit convergent and discriminant validity with a variety of cognitive and personality measures (Zabelina & Condon, 2020).

Given the variety of existing scales measuring individual differences in imagination, one might wonder why we are proposing another one. One primary reason for developing this scale is to capture the tendency to be imaginative in a way that full reflects the location of imagination within a hierarchical taxonomy of personality traits, as captured by the five factor model or Big Five. The Big Five are intended to represent the major dimensions of covariation among all more specific trait descriptions, and lexical research has found “imaginative” to be one of the strongest indicators of Openness/Intellect (John et al., 2008). Saucier (1992, 1994) even proposed “Imagination” as an alternative label for this dimension. One motivation for proposing a new label was the old debate about whether “Openness to Experience” or “Intellect” was a better label for that dimension of the Big Five. Saucier noted that “Imagination” seemed to capture what was overlapping between both Openness and Intellect.

More recently, DeYoung et al. (2007) provided empirical evidence for the existence of Openness and Intellect as the two major subfactors of the broader Openness/Intellect dimension (thereby justifying the ungainly compound label). Factor analysis of 15 different facets of Openness/Intellect yielded a two-factor solution, clearly corresponding to Openness and Intellect. What the two share, represented by the Big Five trait Openness/Intellect, can be regarded as the tendency to seek out, detect, appreciate, understand, and utilize information (DeYoung et al., 2012; DeYoung, 2015a). The Openness aspect of this trait, centered around aesthetics, sensation, and fantasy, describes the tendency to engage with spatial and temporal patterns in sensory or perceptual information, whereas the Intellect aspect, centered around intellectual confidence and interest, describes the tendency to engage with logical or causal patterns in abstract information (DeYoung, 2015b).

In the construction of the scales used to measure Openness and Intellect separately, the Big Five Aspect Scales (BFAS; DeYoung et al., 2007), items were excluded if they exhibited strong but similar factor loadings on both aspects of a particular trait. In the case of Openness/Intellect, this criterion prohibited the inclusion of items directly describing imagination (e.g., “Have a vivid imagination”), providing more empirical support for the notion that imagination is a central feature of Openness/Intellect.

The fact that imagination loads highly on both aspects of Openness/Intellect suggests the potential importance of considering two different types of imagination, corresponding to the two aspects. Psychologists have tended to associate imagination with fantasy and the production of novel mental imagery. In common language, however, the word imagination more generally refers to mental representations of things that are not present to the senses. Particular types of mental representations can reasonably correspond to two distinct dimensions of cognitive function that imagination is used to describe: the mental simulation of sensory experiences that one is not currently having, or *experiential simulation*, and the production of novel ideas that are not obviously cued by the current context, or *conceptual innovation*. These two dimensions of imagination may potentially correspond with the unique characteristics of Openness and Intellect, respectively, which would explain why descriptions of people as “imaginative” would be strongly related to both traits and central to the Big Five domain. People will describe themselves or others as imaginative either because they can vividly picture non-existent scenes or because they can readily come up with original ideas.

Most existing imagination scales, including the FFIS, do not measure the disposition toward conceptual innovation that seems to be important to the most general meaning of imagination. If the relations between imagination and its hypothesized subdimensions mirrors those between Openness/Intellect and its two aspects, there may be utility in designing a scale that captures this experiential-conceptual duality at the facet level. The goal of the present research was to develop and validate a scale of imagination that effectively captures not only the general tendency toward imagination but also variation in conceptual innovation and experiential simulation as two distinct subdimensions. Through this scale, this research intends to ground the measurement of imagination in existing personality theory in a manner that captures the hierarchical nature of Openness/Intellect. Our specific hypothesis was that, among items assessing the tendency to be imaginative, we would find a bifactor structure, with all items loading on a general imagination factor, but some being good indicators of a distinct conceptual innovation factor related to Intellect and others being good indicators of a distinct experiential simulation factor related to Openness.

Study 1

Methods

Sample. Scale items were selected from the International Personality Item Pool (IPIP; Goldberg, 1999). The IPIP is a set of personality items in the public domain with an associated dataset of 1000 participants from the Eugene-Springfield Community Sample (ESCS; Goldberg, 1999). The 398 ESCS participants (235 females) used in the present study ranged from 20 to 83 years old (*M* = 51.5, *SD* = 11.9). These participants were retained for subsequent analyses on the basis of having completed all the items in the BFAS and the items describing imagination identified through the procedure described below.

Initial item selection. Items from the IPIP were selected if they were judged by the first and last authors to describe imagination generally, including behaviors or tendencies related to either conceptual innovation or experiential simulation. These criteria yielded a set of 24 items. Subsequently, 6 items were excluded as semantically redundant (e.g., “I quickly think up new ideas”; “I can’t come up with new ideas”) or inadequate in specifically describing imagination (e.g. “I take time to reflect on things”). Next, 2 items were removed for failing to exhibit correlations with either the Openness or Intellect aspects that were larger than their correlations with the remaining eight aspects of the BFAS (DeYoung et al., 2007).

Analyses. Exploratory factor analysis was performed on the set of 16 items followed by Direct Schmid-Leiman (DSL) transformation using the BiFAD function from the fungible package in R version 3.6.2 (R Core Team, 2018; Waller, 2018; Waller, 2019). The use of the DSL transformation was applicable for the present analysis for several reasons. The DSL transformation tends to perform better than a conventional Schmid-Leiman solution (Schmid & Leiman, 1957) by generating a loadings matrix with a smaller RMSR when compared to bifactor solutions from simulated data with a known population factor structure. The use of a DSL transformation is also desirable on account of the fact that this method can approximate bifactor solutions through the use of a target matrix when only the pattern, but not sizes, of associations of the factor loadings are hypothesized. Additionally, the DSL transformation produces a unique solution, reduces the impact of the initial oblique rotation, and has been demonstrated to be the best method for recovering a hierarchical bifactor solution among many competing methods across a range of sample sizes (Giordano & Waller, 2020; Waller, 2018).

For two group factors corresponding to experiential simulation and conceptual innovation, a factor loadings matrix was extracted using the unweighted least squares criteria and standardized using Kaiser's method. Factors were then rotated using the oblique geominQ rotation algorithm, using 100 random starts to prevent convergence on local minima (Hattori et al., 2017). Salient loadings were defined as values greater than or equal to 0.2 in magnitude and were dichotomized in order to create an empirically generated target matrix of signed ones and zeros, representative of the hypothesized pattern of loadings on the group factors. A vector of ones was appended to this matrix to represent the hypothesized loadings on the general factor and a vector of zeroes was appended to the loadings matrix. The loadings matrix was then rotated to the empirically generated target matrix using an orthogonal Procrustes rotation to generate a DSL solution (Waller, 2018).

Results

Five items were removed due to lack of significant loadings on the general factor, and the analyses were repeated with the smaller item pool. To have the same number of items indexing experiential simulation and conceptual innovation, 2 additional conceptual innovation items were removed. To identify these items, a graded-response item response theory (IRT) model was fit using the 5 conceptual innovation items, and the 2 items with the lowest item information were removed. Exploratory factor analyses were then conducted again using the same specifications described previously.

The final selection of 9 items utilized a 5-point Likert scale ranging from "strongly disagree" to "strongly agree." One item that described a lack of imagination was reverse coded for ease of interpretation of factor loadings. Summary statistics and measures of reliability for Openness/Intellect domain and aspect scores in the BFAS, as well as the imagination scale, are reported in Table 1. The empirically defined target matrix and DSL factor loadings matrix are reported in Table 2. To validate the factor structure derived from the first sample, the scale items were tested in a second sample.

Study 2

Methods

Sample. The 9 scale items identified in the first study were sampled from data collected through the Synthetic Aperture Personality Assessment project (SAPA; https://sapa-project.org/). SAPA utilizes a planned missingness design called Massively Missing Completely at Random

(MMCAR) to estimate covariance structures with up to a 99% level of missingness (Revelle et al., 2016; Revelle et al., 2021). The present study used a subset of responses collected from 747,044 participants. Correlations among each of the 9 scale items are described in Table 3, and their pairwise administration counts are described in Table 4.

Analyses. Exploratory factor analysis of the 9 scale items, followed by the application of the DSL transformation, was conducted using the BiFAD function. The item describing a lack of imagination was reverse coded for ease of interpretation of factor loadings. Again, two group factors were specified corresponding to the factors experiential simulation and conceptual innovation. The item labels assigned in the first study were used in this sample to assist in determining factor loading correspondence across samples. Since the target matrix for the DSL transformation is intended to represent a known bifactor structure or an approximation of the true relationship between factors, the DSL loadings matrix from the first study was used as the target matrix for the present sample. The use of the loadings matrix from a previous sample not only provides a more accurate representation of the true bifactor structure than an empirically generated target matrix, but also facilitates the comparison between loadings across samples. The same specifications for the BiFAD function were utilized in this sample, including a salient loading threshold of 0.2, unweighted least squares factor extraction, Kaiser standardization, and a geominQ oblique rotation with 100 random starts to prevent the convergence on local minima.

Results. Cronbach's alpha and ω_t measures of reliability for BFAS Openness/Intellect and imagination scales are reported in Table 1. The DSL loadings matrix produced after rotating toward the previous study's loadings is shown in Table 5. The RMSR value comparing solutions across samples was .056, indicating good fit between factor structures across samples. Tucker's congruence coefficients denoting factor similarity across samples are reported in Table 6. Items exhibited similar patterns and magnitudes of loadings across samples. Considering the possibility of the difference in sample sizes contributing to variability in the empirically derived target matrix, we repeated the analyses using loadings from Sample 2 as the target matrix for Sample 1. Altering the order of the samples did not produce appreciable differences in the pattern and magnitude of loadings. Items exhibiting equally strong correlations across both group factors were denoted as items reflecting general imagination, while items exhibiting strong loadings on either group factor were denoted as items contributing to sub-scales of conceptual innovation and experiential simulation. Items and sub-scale labels are reported in Table 7.

Study 3

Methods

Sample. The present study used the same samples described in Studies 1 and 2.

Analyses. To assess the discriminant validity of the conceptual innovation and experiential simulation sub-scales, we computed scale scores for the Openness/Intellect domain, as well as the Openness and Intellect aspects from the BFAS, and correlated these with total and sub-scale scores from the imagination scale. To address the MMCAR response pattern from the second sample, scale scores were computed using the scoreOverlap function from the psych package in R (Revelle, 2021). For each sample, we assessed the significance of the difference in magnitude of the correlations of each dimension of imagination with Openness and Intellect, controlling for the association between experiential simulation and conceptual innovation using William's test through the r.test function from the psych package in R (Revelle, 2021). In Sample 2, to address the methodological complications of different sample sizes for each test incurred by the MMCAR design, these tests utilized participants for which full scale scores of each aspect of Openness/Intellect and each subdimension of imagination could be computed.

Results. Correlations between imagination sub-scales in Sample 1 are reported in Table 8, and correlations in Sample 2 are reported in Table 9. In Sample 1, Intellect was correlated more strongly with conceptual innovation (r = .36, 95% CI = [.27, .44]) than experiential simulation (r = .22, 95% CI = [.14, .32]) and this difference was statistically significant after controlling for the association between conceptual innovation and experiential simulation ($t_{(395)}$ = 2.22, $p < .05$). Additionally, Openness was more strongly correlated with experiential simulation (r = .53, 95% CI = [.45, .59]) than conceptual innovation (r = .22, 95% CI = [.13, .31]), and the difference in magnitude of the correlations was significant after controlling for the association between conceptual innovation and experiential simulation ($t_{(395)}$ = 5.72, $p < .001$).

In Sample 2, Intellect was more strongly correlated with conceptual innovation (r = .72, bootstrapped 95% CI = [.52, .85]) than experiential simulation (r = .06, bootstrapped 95% CI = [-.31, .42]), with the difference remaining significant after controlling for the association between conceptual innovation and experiential simulation ($t_{(20)}$ = 3.21, $p < .01$). Inspection of the correlations in Sample 2 suggested that Openness was equally strongly associated with both conceptual innovation (r = .54, bootstrapped 95% CI = [.17, .77]) and experiential simulation (r = .53, bootstrapped 95% CI = [.08, .8]). The difference between these correlations was not significant after controlling for the association between experiential simulation and conceptual innovation ($t_{(12)}$ = .03, p = .98).

Discussion

The present research attempted to create and validate a scale of imagination that distinguishes between experiential and conceptual forms of imagination as facet-level markers of the Big Five trait Openness/Intellect and its two distinct aspects, Openness and Intellect. The replicable factor structure across two large samples provides evidence for a practical distinction between these two forms of imagination, while also showing that they share considerable variance as manifestations of a general imaginative tendency. The replicable association between total imagination scores and domain level measures of Openness/Intellect provides further support of the notion of imagination as a core facet of Openness/Intellect (DeYoung et al., 2012; Schwaba et al., 2020). Additionally, analyses of discriminant validity provide further evidence of the theoretical distinction between experiential simulation and conceptual innovation as unique forms of a larger dimension of imagination.

Results from Sample 1 show clear associations of Openness and experiential simulation, and Intellect with conceptual innovation. The association between Intellect and conceptual innovation is pronounced in Sample 2, but the correlations between Openness and each of the dimensions of imagination are nearly equal in magnitude. Although the similarity of these correlations might be indicative of a potential lack of discriminant validity among the two sub-scales, this similarity might also be explained by the nature of the sampling procedures in Sample 2. The SAPA project recruits participants through voluntary online participation, and this feature may introduce potential self-selection effects, where individuals who participate may be more inclined to understand the nature of their personality, which itself is at least in part a function of Openness (Soto et al., 2011; Beitel & Cecero, 2003). This self-selection may artificially inflate correlations between Openness and other measures of imagination. Additionally, the construction of this scale is limited by the relatively few number of items that describe imaginative tendencies in the IPIP, and it may be the case that the use of greater than three items per sub-scale would result in greater agreement with the hypothesized pattern of correlations with Openness and Intellect. These possibilities invite further investigation into the validity of this structure in different samples and with the addition of more items.

Despite these remaining questions, this scale provides a more nuanced specification than previous scales of a central facet of Openness/Intellect, and offers potential new avenues for future research to integrate the literature relating to imagination and personality. By grounding imagination in the empirical structure of the personality hierarchy, the two aspects of imagination provide further opportunities to explore associations between individual differences in imagination and other constructs that have demonstrated associations with Openness/Intellect and its aspects, including divergent thinking, creative achievement, and intelligence (Kaufman et al., 2016; Silvia, 2008, DeYoung et al., 2012; Woo et al., 2014).

One potential limitation of the scale is that it does not capture all phenomena related to imagination that are assessed by other measures. In the FFIS, for example, the Frequency and Complexity scales contain similar content to our Conceptual Innovation subscale, but its other two scales do not have clear counterparts in our scale. We would argue, however, that the Emotional Valence and Directedness scales from the FFIS are not measuring the disposition to imagination per se, but rather qualities of imagination that may vary no matter how prone one is to imagination in the first place. In support of this conclusion, we note that Emotional Valence (with items like, "I become depressed when imagining my future") was associated with Neuroticism rather than Openness/Intellect and that Directedness (with items like, "My daydreams have a clear goal") converges with Conscientiousness as much as with Openness/Intellect. This is by no means a weakness of the FFIS, but it indicates a different measurement goal. The purpose of our new scale is simply to measure the general disposition toward imagination, in a way consistent with its location in the Big Five.

Conclusion

The primary aim of the current study was to develop and validate a scale of imagination that reflects the hierarchical nature of the Big Five trait Openness/Intellect with its two aspects (DeYoung et al., 2007; DeYoung, 2015b). The proposed model of imagination included two lower-order dimensions, *conceptual innovation* and *experiential simulation*, reflecting unique variation in imagination related to the aspect-level traits Intellect and Openness, respectively. Factor solutions across two large samples using this imagination scale indicated good recovery of the hypothesized structure. Associations with measures of the Openness and Intellect aspects provided evidence of discriminant validity and the utility of modeling dimensions of imagination in accordance with the hierarchical structure of personality. This new measure provides a way to study imagination as a disposition, taking into account two distinct, but related, forms of imagination.

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Tables

Table 1

Descriptive statistics for Openness/Intellect and Imagination Scales

	M (*SD*)	Skew	Range	Cronbach's α	ω_t
Sample 1					
BFAS Openness/Intellect	3.72(.67)	-.28	3.1	.85	.87
BFAS Openness	3.73(.62)	-.63	3.9	.78	.79
BFAS Intellect	3.72(.67)	-.44	3.8	.84	.85
Total Imagination	3.43(.68)	-.13	3.0	.82	.87
Experiential Simulation	2.93(.95)	.02	4.0	.74	.74
Conceptual Innovation	3.74(.79)	-.38	2.7	.81	.81
Sample 2					
BFAS Openness/Intellect				.81	.84
BFAS Openness				.69	.70
BFAS Intellect				.83	.83
Total Imagination				.80	.84
Experiential Simulation				.73	.74
Conceptual Innovation				.73	.74

Note. BFAS = Big Five Aspect Scales. The MMCAR design of Sample 2 prevents the calculation of scale-level descriptive statistics. Sample 2 Cronbach's α values were calculated using the scoreOverlap function from the *psych* package in R.

Table 2

Sample 1 empirically generated target matrix and rotated Direct Schmid-Leiman loadings matrix

Item	Target Matrix			DSL Loadings		
	g	CI	ES	g	CI	ES
1	**1**	**1**	**1**	**.50**	**.34**	**.33**
2	**1**	**1**	**1**	**.46**	**.36**	**.26**
3	**1**	**1**	**1**	**.41**	**.28**	**.28**
4	**1**	0	**1**	**.42**	.03	**.53**
5	**1**	0	**1**	**.39**	-.13	**.65**
6	**1**	0	**1**	**.38**	-.03	**.53**
7	**1**	**1**	0	**.45**	**.62**	.00
8	**1**	**1**	0	**.43**	**.65**	-.06
9	**1**	**1**	0	**.46**	**.59**	.04

Note. g = general factor of imagination, CI = Conceptual Innovation, ES = Experiential Simulation. Salient DSL loadings (≥ .20) shown in bold.

Table 3

Sample 2 Imagination scale item correlations and confidence intervals

Item Label	1	2	3	4	5	6	7	8	9
1	1	[.52, .57]	[.28,.45]	[.3,.49]	[.22,.39]	[.32,.39]	[.31,.37]	[.15,.31]	[.33,.38]
2	.54	1	[.42,.48]	[.37,.43]	[.37,.43]	[.32,.33]	[.34,.35]	[.19,.26]	[.33,.34]
3	.37	.45	1	[.2,.38]	[.18,.34]	[.31,.37]	[.33,.39]	[.2,.36]	[.32,.38]
4	.4	.4	.29	1	[.39,.59]	[.36,.42]	[.09,.16]	[.00,.18]	[.12,.18]
5	.3	.39	.25	.5	1	[.51,.56]	[.03,.1]	[-.09,.09]	[.07,.14]
6	.35	.32	.34	.39	.54	1	[.1,.11]	[.01,.08]	[.14,.15]
7	.34	.34	.37	.13	.07	.11	1	[.44,.5]	[.54,.55]
8	.23	.23	.28	.09	.00	.05	.47	1	[.38,.44]
9	.35	.34	.35	.15	.11	.15	.54	.41	1

Note. Lower triangle = item correlations, upper triangle = bootstrapped 95% confidence intervals

Table 4

Sample 2 pairwise item administration counts

Item Label	1	2	3	4	5	6	7	8	9
1	5701								
2	4491	459663							
3	550	4581	5789						
4	558	4499	548	5725					
5	525	4582	529	504	5771				
6	4531	356671	4626	4503	4603	458916			
7	4521	332956	4583	4503	4575	357314	461182		
8	520	4498	522	519	552	4530	4474	5732	
9	4503	332206	4620	4523	4621	356777	333120	4510	460168

Note. Entries on the diagonal represent the number of participants who completed that item. Entries below the diagonal represent the number of participants who completed both items in that pair.

Table 5

Sample 2 target matrix and rotated Direct Schmid-Leiman loadings matrix

Item	Target Matrix (Sample 1)			DSL Loadings		
	g	CI	ES	g	CI	ES
1	**.50**	**.34**	**.33**	**.47**	**.29**	**.35**
2	**.46**	**.36**	**.26**	**.50**	**.28**	**.40**
3	**.41**	**.28**	**.28**	**.43**	**.33**	**.26**
4	**.42**	.03	**.53**	**.39**	.00	**.52**
5	**.39**	-.13	**.65**	**.38**	-.13	**.63**
6	**.38**	-.03	**.53**	**.38**	-.03	**.53**
7	**.45**	**.62**	.00	**.42**	**.64**	-.06
8	**.43**	**.65**	-.06	**.30**	**.51**	-.09
9	**.46**	**.59**	.04	**.41**	**.56**	.00

Note. g = general factor of imagination, CI = Conceptual Innovation, ES = Experiential Simulation. Salient DSL loadings (≥ .20) shown in bold.

Table 6

Tucker's congruence coefficients of Imagination subscale factors

Subscale	General Imagination	Conceptual Innovation	Experiential Simulation
General Imagination	.99	.79	.63
Conceptual Innovation	.82	.98	.09
Experiential Simulation	.66	.09	.98

Note. Rows = Sample 1, Columns = Sample 2

Table 7

Imagination scale items and labels

Item Label	Subscale	Items
1	General	"Have an imagination that stretches beyond that of my friends"
2	General	"Have a vivid imagination"
3	General	"Am sometimes full of thoughts, ideas, and images in my mind"
4	ES	"Enjoy wild flights of fantasy"
5	ES	"Love to daydream"
6	ES	"Like to get lost in thought"
7	CI	"Am able to come up with new and different ideas"
8	CI	"Am not considered to have new and different ideas" (R)
9	CI	"Am an original thinker"

Note. ES = Experiential Simulation, CI = Conceptual Innovation, (R) = reverse-scored

Table 8

Pearson correlations of Imagination and personality scale scores in Sample 1

Variable	1	2	3	4	5	6
1. Openness/Intellect	1					
2. Intellect	.84	1				
3. Openness	.81	.37	1			
4. Experiential Simulation	.45	.23	.53	1		
5. Conceptual Innovation	.36	.36	.22	.22	1	
6. Total Imagination	.68	.54	.58	.70	.83	1

Note. N = 398. All correlations are significant at $\alpha = .05$

Table 9

Pearson correlations of Imagination and personality scale scores in Sample 2

Variable	1	2	3	4	5	6
1. Openness/Intellect	1					
2. Intellect	.89	1				
3. Openness	.82	.46	1			
4. Experiential Simulation	.31	.06	.53	1		
5. Conceptual Innovation	.75	.72	.54	.18	1	
6. Total Imagination	.72	.55	.69	.67	.85	1

Note. N = 747,044. All correlations are significant at $\alpha = .05$