Validating the Imaginative Behaviour Engagement Scale

Contents

1. ITEM DEVELOPMENT AND RATIONALE

The development of the Imaginative Behaviour Engagement scale (IBES) was guided by extensive literature searchers and consultancy with an expert panel that included the Professors P. L. Ackerman (Georgia Tech), A. Furnham (University College London) R. Hogan (Hogan Assessment Systems), and R. Plomin (Kings College London), all of whom are expert psychometricians. The panel members commented in detail on two full versions of the item pool, as well as on items for two other tests of imagination that yielded poor psychometric properties and thus, research on them was discontinued. To receive feedback from the expert panel, the items were emailed to the panel members, who commented in writing on the items and test rationale and made recommendations for revisions and item development, which were then carried out by the authors.

The IBES was designed as an explicit self-report measure to supplement the implicit measure of imagination behaviour engagement. Its purpose was to broadly sample normal behaviours and actions that require use of imaginative thinking. Specifically, imaginative engagement behaviours were identified that were independent of achievement or direct profit.

The behaviour domains of imagination included (1) having imaginary friends in childhood (6 items), (2) daydreaming (7 items), (3) dreams (6 items), (4) thinking styles (6 items), (5) transportation (6 items), (6) imaginative responsiveness (7 items) and (7) fantasies (4 items). These domains were identified through literature searches and expert panel interviews. Each domain was assessed for frequency, permanency and intensity of corresponding imaginative behaviour engagements.

The initial item pool of the IBES spanned overall 42 questions, which were administered without time limit. Skip-logic questions were built in, so that

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participants skipped questions that were not applicable to them (e.g. if participants

answered they did not have imaginary friends as children, they were not asked what

their imaginary friends looked like). Items were scored using a specifically developed

weighting system that ensured that a) items had individual response scales rather than

uniform Likert scales and corresponding anchors, and b) items of greater weight (e.g.

did you have imaginary friends) were principally differentiated in the scoring from

dependent, lesser weighted items (e.g. did your imaginary friends come to school with

you). Table 1 lists all items in the initial item pool and the weights associated with

each answer.

Table 1: IBES initial item pool with scoring

A) Imaginary Friends
Imaginary friends are people or characters that exist in a person's mind – that is, in
the person's imagination – but have no physical reality.

1. Did you have one or more imaginary friend(s) as a child?
a) No* b) One** c) Two d) Three or more e) I don't remember*
a)0   b)5   c)6   d)7   e)0

2. How long did*** the friendship(s) last?
a) Days b) Weeks c) Months d) Years e) Still with me f) I don't remember
a)1   b)2   c)3   d)4   e)5   f)0

3. Did*** you talk aloud to your imaginary friend(s)?
a) Never b) Occasionally c) Frequently d) Often e) All the time f) I don't remember
a)0   b)5   c)6   d)7   e)8   f)0

4. Do you remember*** the sound of your imaginary' friend(s) voice(s)?
a) I don't remember b) Maybe c) Not very clearly d) Quite clearly e) As if they were
talking to me know f) The friend(s) did not speak
a)0   b)5   c)6   d)7   e)8   f)0

5. What did*** your imaginary friend(s) look like?
a) Girl b) Boy b) Animal c) Other kind of creature d) No specific form e) I don't
remember
a)5   b)5   c)5   d)5   e)3   f)0

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6. Did*** you ever go places with your imaginary friend(s), for example take them to school with you?

a) Never b) Occasionally c) Frequently d) Often e) All the time f) I don't remember
a)0 b)1 c)2 d)3 e)4 f)0

B) Daydreams
Daydreams are mental experiences that include a short-term detachment from one's immediate surroundings, during which a person's contact with reality is blurred.

7. Do you ever daydream?

a) Never* b) Occasionally c) Frequently d) Often e) All the time
a)0 b)5 c)6 d)7 e)8

8. Do you ever lose track of where you really are when daydreaming?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

9. When you daydream, do you hear distinct voices in your head?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

10. When you daydream, do you clearly see images emerging in your mind?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

11. In your daydreams, do you perceive the smell or taste of things as if they were real?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

12. When you touch things in your daydreams, does it feel real?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

13. Could you stop yourself from daydreaming for longer periods of time, if you wanted to?

a)Yes, easily b) Yes, but with effort c) Almost impossible d) Only at exceptional times e) No f) I have never tried
a)0 b)1 c)2 d)3 e)4 f)4

C) Fantasy
Fantasy refers to a situation imagined by a person; the situation typically reflects the person's desires and aims. Fantasies can be very realistic but they are also often far removed from real possibilities.

14. Do you ever fantasize about events or situations that may happen to you?

a) Never* b) Occasionally c) Frequently d) Often e) All the time
a)0 b)5 c)6 d)7 e)8

15. Do you ever revisit specific fantasies in your thoughts and develop them further?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

16. Do you ever use your personal world of fantasies to escape from reality?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

17. Do you regularly find time in your life for engaging in fantasies, perhaps during a walk or workout?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

D) Transportation (presented to participants as "thinking styles")

18. Do you ever have images coming into your mind that are not associated with your concurrent surroundings?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

19. Are you able to imagine events so vividly that they grip your attention like a good book or film?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0 b)1 c)2 d)3 e)4

20. If you wished, could you imagine that your body is so heavy that you would be unable to move?

a) Yes, without any difficulty b) Easily c) With some difficulty d) With great difficulty e) No
a)4 b)3 c)2 d)1 e)0

21. Do you ever imagine you have left your body and are looking at it from an outside perspective?

a) All the time b) Frequently c) Often d) Rarely e) Never
a)4 b)3 c)2 d)1 e)0

22. Can you control how much your mind is absorbed by an imaginary state?

a) Yes, without any difficulty b) Easily c) With some difficulty d) With great difficulty e) No
a)0 b)1 c)2 d)3 e)4

23. If you wished, could you imagine that you had an additional arm so much that you would feel the limb and its movements?

a) Yes, without any difficulty b) Easily c) With some difficutly d) With great difficulty e) No
a)4 b)3 c)2 d)1 e)0

E) Dreams
Dreams refer to perceiving a series of images, ideas, emotions, and sensations that occur usually involuntarily in the mind during certain stages of sleep.

24. Do you ever remember your dreams?

a) Never* b) Occasionally c) Frequently d) Often e) All the time
a)0   b)5   c)6   d)7   e)8

25. Do you ever have trouble distinguishing the memory of your dreams from reality?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

26. In your dreams, do you typically hear, see, smell, taste and feel things?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

27. When you have experienced emotions like fear or joy in your dreams, do they continue to affect you after you have woken up?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

28. Do the memories of your dreams influence your behaviour and actions when you are awake?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

29. Do your dreams resemble realistic scenes from your life?

a)Yes, just like my life b) Similar to my life c) Not much resemblance d) My dreams are not like my life e) My dreams are bizarre
a)0   b)1   c)2   d)3   e)4

F) Thinking styles
Thinking styles refer to the ways in which people visualise and approach ideas, which are mental representational images of some object or of abstract concepts.

30. Do you find that you have lots of ideas?

a) Never b) Occasionally c) Frequently d) Often e) All the time
 a)0   b)1   c)2   d)3   e)4

31. Are you able to think about things for a long period of time?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

32. Do you ever play around with ideas just for fun?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

33. Are your ideas ever bizarre and wild?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

34. Do your ideas ever seem inexplicable to you?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

35. Do you find that you get so interested in a new idea that you forget about other things that you should be doing?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

G) Imaginative Responsiveness (presented to participants as "thinking styles")

36. When you watch a good movie, do you become immersed in the story as if you were part of it?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

37. When you read a good book, do you start thinking and feeling like its characters?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

38. When someone tells you a story, do you feel the story becomes alive in you?

a) Depends on the story teller; b) Never c) Occasionally d) Frequently e) Often f) All the time
a)1   b)0   c)1   d)2   e)3 f) 4

39. When you observe people on the street, do you sometimes start imagining their life stories?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

40. Does listening to music ever transport you into an imaginary state?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

41. When you listen to music, do you feel that your other senses, like smell or taste, intensify?

a) Never b) Occasionally c) Frequently d) Often e) All the time
a)0   b)1   c)2   d)3   e)4

42. After listening to a piece of music, do you sometimes feel as if you had entered a

different world?

a) Never b) Occasionally c) Frequently d) Often e) All the time

a)0 b)1 c)2 d)3 e)4

* Skip rest of domain

** Skip logic for one friend verses more.

*** Skip logic for past/present tense

2. VALIDATION STUDIES

The initial IBES item pool was administered to ~~a~~ lab-based and remotely assessed online sample<u>s that completed an extensive battery of psychometric measures</u>. Below we describe these validation studies <u>in detail and focus on the association of the IBES with existing measures of imagination, including the NEO-PI-R version of Openness to Experience (Costa & McCrae, 1992) and the Vividness of Visual Imagery Questionnaire (Makrs, 1973). We do not report details on the other measures included in these studies but corresponding information is available from the first author upon request.</u> ~~and their outcomes in detail.~~

Samples

Pilot: The pilot sample was recruited and tested in September 2015, consisted of 3 male and 7 female participants, and ranged in age from 21 to 33 years. All pilot participants were undergraduate and postgraduate current students of Psychology or Media and Communications at Goldsmiths, University of London; they were compensated for their time with £10 shopping vouchers.

The participants completed an initial version of the full test battery that was adapted as online survey format (Qualtrics Research Software) and administered on computers in designated laboratory spaces. They were given pen a paper to note down any comments that they had regarding the test battery and items as they went through it. Participants generally completed the task within 70 minutes, and afterwards a research assistant interviewed them verbally about the test battery. The test battery and survey design was refined in line with pilot sample's written and verbal comments.

Lab-based sample: A total of 125 university students were recruited to complete the test battery in a lab-based setting (i.e. research cubicle). Of these, 16

participants were excluded from the analyses because they failed to complete all measures, either because of technical difficulties (N = 4) or because they failed one of three data control items (N = 12). The final sample of 109 participants included 85 females and 24 males; they ranged in age from 18 to 58 years (mean = 21.35, SD = 5.19). Recruitment and testing took place from October through December 2015. Participants were compensated for their time with course credits and £10 shopping vouchers.

Remote online sample: Approximately 230 individuals responded to online advertisements for this study, which specifically invited students and were circulated through university and research mailing lists and social media. After receiving detailed study information, a personal survey link was requested by 182 individuals, 110 of whom successfully completed the study. The final sample included 88 females, 21 males and 1 person who preferred not to state their gender. The sample ranged in age from 18 to 45 (mean = 21.42, SD = 4.21). Recruitment took place in December 2015 and January 2016. Participants received £10 online shopping vouchers as compensation.

Measures

Cognitive Ability. Working Memory Test [WM]. The WM test was developed over the course of a year as a measure of cognitive performance, and earlier versions have been used in several other studies at the Hungry Mind Lab (e.g. moo-Q; von Stumm, 2016). The test was developed specifically for online administration using Qualtrics Survey Software. The WM test was included here to allow gauging the extent of confounding of individual differences in imagination by working memory ability, which is also thought to be a good proxy for general intelligence (Colom, Rebollo,

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Palacios, Juan Espinosa, & Kyllonen, 2004; Colom, Abad, Quiroga, Shih, & Flores-Mendoza, 2008).

A column with 4 single-digit or double-digit numbers was shown for exposure times of 5 and 7 seconds respectively, and then replaced by a second column of single- or double-digit numbers with numerical operators (+ or -) for the same exposure time as before. Participants had to enter the sums of both columns in the order that the numbers had been shown in within 35 seconds. The test increased in difficulty, with the first trials using single-digit numbers and subsequent trials using double-digit numbers. Each correctly entered sum was coded as 1; all others were coded as 0.

Figure 1. Illustration of Working Memory Test

9		-6		3
7	→	+8	→	15
3		+2		—
2		-4		—
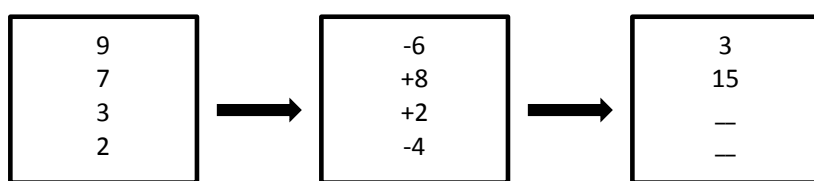
Bricks Test. The Bricks Test (Shakeshaft & Rimfeld, 2015[1]) includes 72 items that test the ability to mentally rotate and visualize abstract objects (i.e. 2D and 3D). In a sample of twins from the Twins Early Development Study (TEDS; N= 1480), the Bricks Test items showed good discriminative power, and the test scales had good internal consistencies. 15 of the test's items were selected to be included in the current study, which will allow evaluating the extent to which visualisation ability confounds imagination.

Each of the administered 15 Bricks Test items consisted of the a 2D or 3D target object and four images of similar objects that were either rotated (5 items), or partially occluded (5 items) or transformed to show a solid version of the wireframe

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[1] Adapted from visualisation test battery developed for TEDS. Unpublished test manual.

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~~target object (5 items). Participants had to identify the image that showed the target object in 20 seconds, otherwise the item was discontinued and the next item was displayed. For each item type, participants were shown an example in gif format (i.e. moving image). The participants' responses (i.e. correct, false or missed) and their response times were recorded.~~

***Existing measures for imagination.** Openness to Experience (NEO PI-R; Costa & McCrea, 1992).* This personality domain spans six facets, including Aesthetics, Feelings, Fantasy, Values, Ideas and Actions, each of which is assessed by 8 self-report items. For this study, all Openness facets but Values were assessed with overall 40 items. The included facets were thought to capture parts of the imagination personality construct space (McKelvie, 1995). The NEO PI-R is a well-validated and highly reliable measure (McCrea & Costa, 2008; McCrae, Kurtz, Yamagata & Terracciano, 2010).

Vividness of Visual Imagery Questionnaire [VVIQ, Marks 1973]. The VVIQ consists of 16 items in four groups of 4 questions. Each of the question groups corresponds to a scene or image, for example a sunset, that the participant is invited to form in his or her mind. The vividness of the image is rated on a 5-point scale ranging from "No image" to "perfectly clear". The test is untimed. The VVIQ has been widely used as a measure of individual differences in vividness of visual imagery, and it has been shown to have good validity and reliability but elsewhere its psychometric properties have been criticised (Eton et al., 1998; McKelvie, 1995). For the current study, the descriptions of each scene or image were slightly adapted to suit the age and cultural background of the current study sample.

Procedure

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After providing consent to participate and information on their demographic background, participants completed the battery's tests in the following order: (1) a timed working memory test (not reported here); (2) an untimed measure of Openness to Experience (NEO-PI-R; details below). The NEO P-IR items were randomised and split in half to prevent fatigue, with 20 questions displayed after the working memory task and 20 items after (3) the untimed IBES, as well as two other tests for imagination that were not further pursued; (4) a timed measure of visualisation ability (Bricks test; not reported here); and lastly (5) the untimed Vividness of Visual Imagery Questionnaire (VVIQ, Marks, 1973).

For each test, participants received untimed, on-screen instructions and they were informed if a test had a time limit for completion. In-lab sample participants were also instructed that the study included 3 quality-control items (e.g. "this is a quality control item. Please select the 3rd option below), and that failing one of these items resulted in an early termination of the survey. Remote sample participants were told that in addition to quality control items, they performance was monitored by analysing the probability of their response patterns and the time they spent on each item, and that the survey was to terminate early if they failed to respond candidly. These measures were taken to encourage participants to 'honestly' complete the test battery. In-lab sample participants completed the experiment generally in 45-60 minutes; they were verbally debriefed by a research assistant, offered to receive a written debrief via email, and received their compensation. The remote sample participants received the shopping vouchers via email after they had successfully completed the test battery.

Statistical Analysis

Items were retained if their response frequencies indicated that at least 25% of the sample engaged to some degree with the behavior assessed. For items that followed an engagement question (e.g. having imaginary friends or not), the 25% were computed considering only the initially affirmative responses. Each behavior domain scale was subjected to exploratory factor analysis, testing the appropriateness of a one-factor solution. After, the two items with the highest first-factor-loading were retained from each behavior domain scale. The items were identified first in the lab-based and then in the online sample. When results differed across samples, two additional analytic steps were applied. If the factor loadings between the lab-based and the online sample diverged by less than .02, the solution from the lab-based sample was considered as confirmed by the online sample. For the remaining cases, the items with the highest loadings per domain scale from each sample were retained (i.e. 4 in total). Subsequently, all identified items were subjected to a further factor analysis in the combined sample (N =219) to test the latent structure of IBES.

For the NEO-PIR Openness facets and the VVIQ, unit-weighted composite scores were computed after reverse coding and adjusted for the number of items per scale. ~~Unit-weighted composites were also computed for the two cognitive measures of working memory and visualization ability (i.e. score of 1 for correct and of 0 for missed or false answers).~~

Descriptives were examined for the IBES to investigate its mean and distribution across samples. Also, the test's associations with age, gender, and subject of study were tested. Concurrent and divergent validity were explored in terms of correlations between the IBES and the VVIQ and~~,~~ the Openness facets.~~ and cognitive ability measures of visualization ability and working memory.~~

Results

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Table 2 shows the descriptive statistics across samples for all previously established measures. All variables were sufficiently reliable and normally distributed in the lab-based sample. In the online sample, the reliability for the Openness facet Ideas was comparatively low (i.e. Cronbach's alpha = .48) and the scores on the Openness facet Feelings somewhat violated the assumption of normality (i.e. kurtosis > 1.5). Samples did not differ significantly on study measures (p > .05). In both samples, the internal consistency of the visualization ability scores was relatively low (.53 lab-based and .45 online), which is in line with previous data on this measure (Shakeshaft et al., in prep). Overall, the samples' data on the established measures was normal and reliable.

Table 2: Descriptives for previously established measures in lab-based and online sample

	n_{item}		Mean	SD	Min	Max	Kurt	Skew	Alpha
WM	32	L	8.27	4.29	0	19	-0.38	0.25	0.78
		O	11.99	6.51	0	30	-0.05	0.48	0.88
VA	15	L	8.77	2.42	4	14	-0.49	0.22	0.53
		O	8.85	2.23	0	14	1.82	-0.6	0.45
VVIQ	16	L	3.92	0.66	2.25	5	-0.82	-0.23	0.89
		O	3.74	0.62	2	5	-0.56	-0.21	0.88
Openness									
Ideas	8	L	3.76	0.61	2.25	5	-0.47	-0.36	0.80
		O	3.74	0.6	1.5	4.88	1.44	-0.97	0.77
Action	8	L	3.11	0.53	1.88	4.12	-0.82	0.03	0.63
		O	3.03	0.46	1.75	4	-0.20	-0.41	0.48
Feelings	8	L	3.84	0.66	1.88	4.88	1.13	-0.48	0.63
		O	3.84	0.66	1.12	5	1.66	-0.94	0.79
Fantasy	8	L	3.63	0.72	1.38	4.88	-0.19	-0.41	0.83
		O	3.66	0.66	1.88	4.75	-0.02	-0.62	0.77
Aesthetics	8	L	3.55	0.69	1.25	4.88	0.38	-0.63	0.78
		O	3.47	0.66	1.88	4.88	-0.04	-0.30	0.74

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Note. L refers to the lab-based (N = 109) and O to the online-assessed (N = 110) sample. ~~WM refers to working memory; VA to visualization ability;~~ VVIQ is the Vividness of Visual Imagery Questionnaire. Alpha is Cronbach's alpha.

~~Samples did not differ significantly on study measures (p > .05), except for working memory with the online sample performing significantly better than the lab-based sample (p < .001). The correlation between working memory and visualization ability was .38 in the lab-based and .12 in the online sample.~~

Item analyses for IBES. Only one item from the having imaginary friends domain attracted a rate of affirmative responses below 25%, which was excluded. Table 3 shows the Eigenvalue of the first extracted factor for each behavior domain, and the highest loading items identified from each behavior scale in each sample.

Table 3: Factor loadings across lab-based and online sample.

	n		Eigenvalue	1st item	2nd item
Imaginary friends	5	L	3.44	0.89	0.92
		O	3.27	0.93	0.95
Daydreams	7	L	3.2	0.76	0.82
		O	2.52	0.78	0.75
Fantasy	4	L	2.54	0.86	0.81
		O	2.77	0.87	0.82
Transportation	6	L	2.16	0.74	0.73
		O	1.85	0.75	0.72
Dreams (night)	6	L	1.59	0.57	0.84
		O	2.28	0.81	0.75
Ideas	6	L	3.03	0.79	0.78
		O	2.69	0.76	0.73
Responsiveness	7	L	2.76	0.74	0.77
		O	2.9	0.69	0.69

Note. L refers to the lab-based (N = 109) and O to the online-assessed (N = 110) sample.

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For 5 out of 7 behavior domain scales, the two items with the highest factor loading were identical across lab-based and online sample. For the remaining two scales (i.e. daydreams and transportation), different sets of highest loading items emerged across both samples. For both domains factor analysis of all identified items (i.e. 18 items) in the combined sample suggested including one item that initially emerged in the analyses of the lab-based and the online sample, respectively. A subsequent factor analysis of the retained items (n = 14; N = 219) showed a first-factor Eigenvalue of 4.54 (second factor Eigenvalue = 0.75). Parallel analysis and screeplot confirmed a one-factor solution as appropriate (Table 4); accordingly, unit-weighted composites were computed for IBES.

Table 4: Factor loadings of items retained for IBES scale

Item	Loading	Question
Friend1	0.28	Did you have one or more imaginary friend(s) as a child?
Friend2	0.35	How long did the friendship(s) last?
Daydream4	0.72	When you daydream, do you clearly see images emerging in your mind?
Daydream5	0.62	In your daydreams, do you perceive the smell or taste of things as if they were real?
fantasy2	0.71	Do you ever revisit specific fantasies in your thoughts and develop them further?
Fantasy4	0.65	Do you regularly find time in your life for engaging in fantasies, perhaps during a walk or workout?
Control3	0.7	Do you find that you get so interested in a new idea that you forget about other things that you should be doing?
Control5	0.42	If you wished, could you imagine that you had an additional arm so much that you would feel the limb and its movements?
Dreams4	0.47	When you have experienced emotions like fear or joy in your dreams, do they continue to affect you after you have woken up?
Dreams5	0.50	Do the memories of your dreams influence your behaviour and actions when you are awake?
Ideas3	0.56	Do you ever play around with ideas just for fun?
Ideas6	0.61	Are you able to imagine events so vividly that they grip your attention like a good book or film?
Stories2	0.62	When you watch a good movie, do you become immersed in the story as if you were part of it?
Stories1	0.55	When you read a good book, do you start thinking and feeling like its characters?

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Table 5 shows the descriptives of the IBES, based on its retained items, across the two study samples.

Table 5: Descriptives for the IBES

			Mean	SD	Min	Max	Kurt	Skew
IBES	14	L	24.83	11.08	3	48	-0.97	0.03
		O	24.11	11.06	5	50	-0.86	0.5

Note. L refers to the lab-based (N = 109) and O to the online-assessed (N = 110) sample.

Table 6 shows correlations between the IBES, the VVIQ ~~cognitive ability~~ and the Openness facets based on the combined sample (N = 219). The IBES scale correlated significantly (positively) with the Openness facets and the VVIQ with correlations ranging from r = .23 to r = .52.

Table 6: Correlations ~~between~~ of imagination~~, ability and openness~~ measures

	IBES
IBES	-
~~WM~~	~~-0.08~~
~~VA~~	~~0.01~~
Feelings	0.28
Fantasy	0.52
Action	0.25
Ideas	0.23
Aesthetics	0.38
VVIQ	0.4

~~The IBES scale correlated significantly (positively) with the Openness facets and the VVIQ with correlations ranging from r = .23 to r = .52, but had non-significant correlations with working memory and visualization ability.~~

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