Matrix Matching Test

The Matrix Matching Test is a free to use test of intelligence or general cognitive ability, appropriate for use with adolescents or adults. It can be used for research but should not be used for clinical or educational decision making. The file for administration of the test can downloaded from www.gpluck.co.uk. The test was validated with stimulus presentation as PowerPoint files administered on 10-inch tablet computers. There are two parts to the test: Visuospatial and Semantic Matching Tests. Usually both tests would be administered and a total score calculated (that total will give the best measure of general cognitive ability). However, they could be administered or interpreted separately. Administration should be one to one, a researcher and a participant. Assessment must be in a quiet place free of distractions. It could potentially be administered over the internet in a video call.

The task administration file provided on www.gpluck.co.uk has each task as an image on a separate slide within the PowerPoint file. This prevents elements from moving around the screen when displayed with new software. However, this could mean that the images are not the correct shape for your device's screen. The raw PowerPoint files can be obtained, they can then be edited to different sizes. If you would like to work with the raw, editable files please email me at graham@gpluck.co.uk.

Visuospatial Matrices

This test is one half of the Matrix Matching Test. The visuospatial Matrices measures primarily fluid intelligence. The test starts with a practice task (purple triangles). You should talk the participant through this task, say something like:

> *'Here is a picture with one part missing, indicated by the question mark, we need to pick one from the set below that completes the picture. In this case, because they are all purple triangles, the correct answer is number 4, because that is also a purple triangle'.*

There are 12 actual trials, graded in difficulty from easiest to more most difficult. All should be administered to each participant. The participant should move through them indicating their choice by saying the number of the response or pointing. The scoring table is shown below. The correct response is shown in **bold**. If the participant chooses that response, they receive one point. If they choose anything else, they receive 0 points. If a participant receives a 0 on task 1, 2 or 3, you should tell them that it is wrong and explain what the correct answer is and why. However, no feedback is given for tasks 4-12. All should be administered. There is no time limit.

Semantic Matrices

The 12 semantic matrices primarily measure crystalized intelligence. They should be administered in more or less the same way as the Visuospatial Matrices. The first task is for practice only. You should again talk the participant through this one. Say something like this:

> *'Now we have a similar thing but with pictures, your task is to look at the top row with a missing piece and pick one so that the are all similar. For example, in this set, the balloon and the cherries are both red, so we would pick the red bus, so that we have a set of red things.'*

You then administer tasks 1-6 as before. If any errors are made on tasks 1-3 feedback should be given, including an explanation of what the correct response is and why. However, no feedback is given for tasks 4-12. There are no time limits and all tasks are administered.

For tasks 7-12 of Semantic Matrices, the participants must choose two from the bottom row to make the set. They must get both to receive the 1 point. There is an additional practice task to introduce this, the practice is before task 7. You should say something like:

> *'Now there are two pieces missing and you have to choose two from the bottom row. In this example the fireworks, the cannon and the alarm clock are all noisy, so you would pick the two other noisy things, 1 the lightning and 2 the cymbals'.*

Then continue onto the end.

The total score for the Matrix Matching Test is the sum of scores from the Visuospatial and Semantic Matrices. The two components may be differently affected by ageing. For between-subject comparison (such as a patient group to a control group) this will not cause any problems. However, if the total score is used for correlational analyses, in participants with a wide age range, some adjustments may be necessary. A method for adjusting total Matrix Matching Test scores with linear regression is described in Pluck (2019). Or, if the Visuospatial and Semantic scores are analyzed separately, then age can be included as analysis covariate (e.g., partial correlations).

The Matrix Matching Test is designed to be relatively culture free and can be used in many different countries. The instructions can be translated to different languages.

Summary of Psychometric Properties of the Matrix Matching Test

	Adults	**Adolescents**
Source	Pluck (2019)	Pluck & Haro (2021)
Internal consistency (Cronbach's α)	.75	.72
Test-retest (correlation *r*)	.93	.88
Correlation IQ (correlation *r*)	.89 (WAIS-IV full IQ)	.77 (WISC-IV Matric Reasoning)
Correlation with GPA (correlation *r*)	.4 (undergraduate GPA)	.47 (high school GPA)

Please contact me if you require any advice on use or analysis of the data. If you publish any work using this test, or include it in theses, please cite the two papers given below.

Best wishes,
Dr Graham Pluck, Bangkok,
30 November 2021

References

Pluck, G. (2019). Preliminary validation of a free-to-use, brief assessment of adult intelligence for research purposes: The Matrix Matching Test. *Psychological Reports. 122*(2), 709-730. https://doi.org/10.1177/0033294118762589

Pluck, G. & Haro, K. I. (2021). Preliminary evidence for The Matrix Matching Test as a valid and reliable measure of general cognitive ability in adolescents. *Revista Latinoamericana de Psicología, 53*, 154-163. https://doi.org/10.14349/rlp.2021.v53.17

Visuospatial Matrices Scoring

		Score 0/1	
Example	X X X X X X	Not scored	
1	**1** 2 3 4 5 6		Any mistake of tasks 1-3, give feedback on why it is a mistake.
2	1 **2** 3 4 5 6		
3	1 2 3 **4** 5 6		
4	1 2 **3** 4 5 6		No feedback for these tasks (4-12). Participants can have as much time as they want. If they can't find an answer, encourage them to guess. There is no termination rule, continue until all 12 are completed.
5	**1** 2 3 4 5 6		
6	1 2 3 4 5 **6**		
7	1 **2** 3 4 5 6		
8	1 2 **3** 4 5 6		
9	1 2 3 **4** 5 6		
10	1 2 3 4 **5** 6		
11	1 2 3 **4** 5 6		
12	1 2 3 4 5 **6**		

Semantic Matrices Scoring

Order		Score 0/1	
X - example	practice	Not scored	
1	1 **2** 3 4		Any mistake of tasks 1-3, give feedback on why it is a mistake.
2	1 2 **3** 4		
3	**1** 2 3 4		
4	1 2 3 **4**		No feedback for these tasks (4-12). Participants can have as much time as they want. If they can't find an answer, encourage them to guess. There is no termination rule, continue until all 12 are completed.
5	**1** 2 3 4		
6	1 2 3 4 **5**		
X – example	practice	Not scored	
7	1 **2 3** 4 5		
8	1 2 3 **4 5**		
9	**1 2** 3 4 5		
10	1 **2** 3 **4** 5		
11	**1** 2 3 4 **5**		
12	1 2 3 **4 5**		