UK Biobank

Touch-screen Paired Associate Learning

Version 0.1

http://www.ukbiobank.ac.uk/
9th November 2017

This manual details the procedure for the touch-screen version of the Paired Associate Learning Test completed at an Assessment Centre of the UK Biobank.

Contents

1   Introduction

1.1   The UK Biobank cognitive function tests have been selected to cover a range of cognitive domains and are believed to be sensitive to cognitive decline and dementia. All tests have been constructed specifically for use in UK Biobank and other epidemiological studies in order to conform to the constraints of conducting large population-based studies. Tests have been constructed using established testing paradigms that have been shown to produce valid scores and to be acceptable to participants.

1.2   This manual details the procedure for the touch-screen version of the paired associate learning test completed at a UK Biobank Assessment Centre. To date this version has been administered at the UK Biobank Imaging Centres only.

1.3   The collection of data from assessment visits uses the direct data entry system of the Imaging Centre Environment (ICE).

1.4   At the start of their visit, each participant is issued with a USB key at the Reception station. This contains Participant ID, name, date of birth and gender. As the participant progresses between stations the USB key acts as an identifying token. The USB key is encrypted so can only be read by assessment centre computers. None of the participant's test data is transferred to the USB key. At the end of the assessment visit all identifying data on the USB key is removed.

2   Staff

2.1   This procedure is performed by the Receptionist or any staff member who has received suitable training and has been granted the relevant module permissions. A member of staff is always present within or near to the touch screen area to provide assistance and supervision. The Assessment Centre Manager oversees that all staff work in accordance with this procedure.

3   Paired Associate Learning

3.1   The paired associate learning test is administered as part of a larger suite of cognitive function tests. These tests are performed in the following order:
1. Prospective memory test – Part 1
2. Pairs memory test
3. Numeric memory test
4. Fluid intelligence test

5. Reaction time (Snap)
6. Trail making test
7. Symbol digit substitution test
8. Picture vocabulary test
9. Paired associate learning test – Part 1
10. Matrix pattern completion
11. Paired associate learning – Part 2
12. Tower rearranging
13. Prospective memory test – Part 2

3.2 Summary: In the paired associate learning test participants are shown 12 pairs of words (for 30 seconds in total) then, after an interval (in which they do a different test), presented with the first word of 10 of these pairs and asked to select the matching second word from a choice of 4 alternatives. The words are presented in the order: huge, happy, tattered, old, long, red, sulking, pretty, tiny and new.

3.3 The instructions are:

"Next we're going to show you a list of 12 pairs of words, for instance "Large Cup" or Shiny Handle". Please try to remember these pairs.

Later on, after doing a different game, we'll show you some words from these pairs and ask you to indicate what the other word was. For example, if the original pair was "Shiny Handle" then you might be asked whether Shiny was paired with Coin, Handle, Mirror or Forehead.

You only have 30 SECONDS to memorise the word pairs, so get ready then press the Next button to begin.

A progress bar at the bottom will show you how long you have left to remember the pairs."

3.4 The words to be memorised are then displayed for 30 seconds:

sulking	elephant	tiny	cat
pretty	dish	long	curtains
huge	trousers	sad	clown
lucky	win	tattered	dress
happy	dog	new	plant
old	house	red	car

3.5 Once the participant has completed the next test, the following instructions are displayed:

"Earlier on you were shown a list containing 12 pairs of words to memorise. We would now like you to try to remember some of these pairs.

You will be shown one word at a time from this list and asked to choose the word that was paired with.

For example, if the original pair was "Shiny Handle" then you might be asked whether Shiny was paired with Coin, Handle, Mirror or Forehead."

3.6 Participants are then presented with the first word of 10 of the pairs. Once they have provided a pair for each of these words they proceed to the next test.

4   Data collection

The following data is stored:
Data field 20197:   Number of word pairs correctly associated
Data field 6448:   Words associated with "huge"
Data field 6459:   Words associated with "happy"
Data field 6470:   Words associated with "tattered"
Data field 6481:   Words associated with "old"
Data field 6492:   Words associated with "long"
Data field 6503:   Words associated with "red"
Data field 6514:   Words associated with "sulking"
Data field 6514:   Words associated with "pretty"
Data field 6514:   Words associated with "tiny"
Data field 6514:   Words associated with "new"