Visual Episodic Memory Test

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Purpose of this document

This file contains all the information to understand and analyze the Visual Episodic Memory Test (Continuous Recognition Task). You will be able to find relevant information about how this assessment task works, what it measures, and all relevant data about the variables recorded during the performance of the activity.

Task Info

In this section information about the task, its structure, and stimuli will be given.
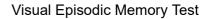
Task Description

In the *Visual Episodic Memory Test*, participants are presented with 50 images taken from a pool of 25 unique ones. The participant must tap the screen or press the spacebar key as soon as possible if they recognize the image as having been previously presented during earlier trials of the test. Otherwise, they must wait 3 seconds until the next image is shown.

The concept of this task is based on the MemTrax Memory Test (Ashford, 2005; Van Der Hoek et al., 2019), which is an implementation of a continuous recognition task.

You can try the Visual Episodic Memory Test for free on [this page](). If you want more information about its technical details, you can contact us at support@cognifit.com.

Cognitive skills measured

The primary cognitive ability measured by this task is **Non-Verbal Memory**, **Short-term Memory**, and **Recognition**.

Task Structure

The test is divided into two phases: the learning phase and the testing phase.

The learning phase with a message giving the instructions for the task. Then, a timer will go down from 3 to 1 before actually showing the first image. This learning phase is composed of 8 trials, 4 of which show the same image, and the other 4 will show different images.

The testing phase of this task consists of 50 trials, each of them showing an image that may or may not have been shown before.

After presenting each image, the user has 3 seconds to make a positive response (pressing the spacebar or tapping the touch screen) or to ignore the image depending on whether the participant believes it is a repeated image or a new one, respectively. After that, the next image will be displayed.

In this context, there are "GO" trials which refer to a scenario where the appropriate response is to provide a positive reaction to the presented image (namely, repeated images), and "NO-GO" trials (namely, new images not presented before) where the correct response is to examine the image for future recognition.

Task Stimuli

Five categories are randomly selected (from a pool of 54 different categories) and each category contributes five randomly selected images (each category has between 15 and 30 different images), resulting in a total of 25 unique images. These 25 images are used to create 50 trials, with 5 images repeated three times, 15 images repeated twice, and 5 images presented once.

Variables Info

In this section details about the variables, their definition, range, and other pieces of relevant information will be given.

Basic Variables

Basic variables refer to variables and indices that are commonly used in experimental research and clinical settings.

Accuracy

This variable measures the percentage of correct responses (pressing the spacebar when appropriate, and not pressing the spacebar when not appropriate) in all the trials. It ranges from 0 to 100, and higher values indicate better performance.

Response time

This variable measures the average response time in correctly completed trials in which a response had to be given (namely, correct GO trials). It ranges from 0 to 3000 milliseconds, and lower values indicate better performance.

Accuracy in GO trials

This variable measures the percentage of correct responses in trials where the spacebar should be pressed, that is, when it was a repeated image. It ranges from 0 to 100, and higher values indicate better performance.
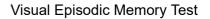
Accuracy in NO-GO trials

This variable measures the percentage of correct responses in trials where the spacebar should not have been pressed, that is, when the image was not a repeated one. It ranges from 0 to 100, and higher values indicate better performance.

Omission errors (percentage)

This variable measures, as a percentage, the number of times the user didn't press the spacebar when they should, that is, when it was a repeated image but no response was given before the timeout of 3000 milliseconds. It ranges from 0 to 100, and lower values indicate better performance.

Commission errors (percentage)

This variable measures, as a percentage, the number of times the user pressed the spacebar when they shouldn't have, that is, when the presented image was new and no response was required. It ranges from 0 to 100, and lower values indicate better performance.

Additional Variables

Additional variables refer to the variables and indices that are calculated by CogniFit for its internal computation of results.

Accuracy in GO trials (direct score)

This variable measures the amount of correct responses in trials where the spacebar should be pressed, that is, when it was a repeated image. It ranges from 0 to 25, and higher values indicate better performance.

Accuracy in NO-GO trials (direct score)

This variable measures the amount of correct responses in trials where the spacebar shouldn't be pressed, that is, when the image was not a repeated one. It ranges from 0 to 25, and higher values indicate better performance.

Omission errors

This variable measures the number of times the user didn't press the spacebar when they should, that is, when it was a repeated image but no response was given before the timeout of 3000 milliseconds. It ranges from 0 to 25, and lower values indicate better performance.

Commission errors

This variable measures the number of times the user pressed the spacebar when they shouldn't, that is, when the presented image was new and no response was required. It ranges from 0 to 25, and lower values indicate better performance.

Validity Index

The user's performance will be considered to deviate from what is expected to the point of invalidating the results of the assessment when it falls outside these ranges.

Task validity

This variable represents the validity of the whole task, and it is 'true' only when all the individual variables of the Validity Index of the task are 'true'. Otherwise, it is 'false'.

Accuracy validity

This variable measures the validity of the variable "Accuracy" and it is 'true' when its value is between 0 and 100 (inclusive). Otherwise, it is 'false'.

Response time validity

This variable measures the validity of the variable "Response time" and it is 'true' when its value is between 250 and 3000. Otherwise, it is 'false'.

Omission errors validity

This variable measures the validity of the variable "Omission errors" and it is 'true' when its value is between 0 and 13 (inclusive). Otherwise, it is 'false'.

References

Ashford, J. W. (2005). [P-049]: Memtrax computerized memory test, a one-minute

dementia screen. *Alzheimers & Dementia*, *1*(1S_Part_1).

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Van Der Hoek, M. D., Nieuwenhuizen, A. G., Keijer, J., & Ashford, J. W. (2019). The

MemTrax Test Compared to the Montreal Cognitive Assessment Estimation of Mild

Cognitive Impairment. *Journal of Alzheimer's Disease*, *67*(3), 1045-1054.

https://doi.org/10.3233/jad-181003