



Progressive Matrices Test

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Purpose of this document

This file contains all the information to understand and analyze the Progressive Matrices Test. 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 *Progressive Matrices Test*, participants are shown an image composed of a single pattern or a matrix of elements that vary according to a given logic. However, one part of the pattern or one of the elements of this matrix is missing, and the user must decipher the logic followed by the matrix to identify which element should appear in that given position. The user can choose as an answer one out of the six or eight elements offered as response options below the matrix, where only one is correct.

The concept of this task is based on Raven's Standard Progressive Matrices Test (RSPM; Raven, 1936; Raven, 1938). More specifically, this task is based on the 9 RSPM test items that best predict the user's performance on the full test (Bilker et al., 2012).

You can try the *Progressive Matrices 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 abilities measured by this task are **abstract reasoning**, **processing speed**, **visual perception**, **spatial perception**, **estimation**, **working memory**, and **shifting**.

Task Structure

The task is divided into two phases: one learning phase and one testing phase.

Phase	Type of stage	Amount of trials	Number of options	Time to answer
1	Learning	1	6	300 s
2	Testing	9	6 or 8	150 s

Task Stimuli

All the stimuli in this task have floral motifs. In them, the flowers, leaves, or stems of the figures shown vary, according to the logic applied in each item.

In the practice item and in the first testing item, instead of presenting a matrix as such, a single image with the lower right corner cut-off is presented. In both cases, there are 6 response alternatives.

In test item 2, the matrix consists of a grid of 2x2 elements and has 6 response alternatives. However, in the rest of the items, the matrix will be formed by a grid of 3x3 elements and will have 8 answer alternatives.

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 accuracy in all trials of the testing phase. It ranges from 0 to 100, and higher values indicate better performance.

Completion time

This variable measures the total time needed to complete the testing phase. It ranges from 0 to 1350000 milliseconds, and lower values indicate better performance.

Number of correct trials until first failure

This variable measures the number of trials correctly answered until the first trial incorrectly answered, if any. The correct answers given after the first failure are not taken into account. It ranges from 0 to 9, and higher values indicate better performance.

Completion time until first failed trial

This variable measures the total time needed to complete all the trials correctly answered until the first trial failed, if any. It ranges from 0 to 1350000 milliseconds, and lower values indicate better performance.

Omission errors

This variable measures the number of trials where the user didn't make a single response, that is, the user didn't select any figure in the response window of 150000 milliseconds of the trial. It ranges from 0 to 9, and lower values indicate better performance.

Omission errors (percentage)

This variable measures the percentage of trials where the user didn't make a single response, that is, the user didn't select any figure in the response window of 150000 milliseconds of the trial. It ranges from 0 to 9, 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.

Correct trials

This variable measures the number of correct trials of the testing phase. It ranges from 0 to 9, and higher 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. Otherwise, it is 'false'.

Completion time validity

This variable measures the validity of the variable "Completion time" and it is 'true' when its value is between 0 and 1350000 milliseconds. Otherwise, it is 'false'.

Correct trials validity

This variable measures the validity of the variable "Correct trials" and it is 'true' when its value is between 0 and 9. 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 not 9. Otherwise, it is 'false'.

References

- Bilker, W. B., Hansen, J. H. L., Brensinger, C. M., Richard, J., Gur, R. E., & Gur, R. C. (2012). Development of Abbreviated Nine-Item Forms of the Raven's Standard Progressive Matrices Test. *Assessment*, 19(3), 354-369.
<https://doi.org/10.1177/1073191112446655>
- Raven, J. C. (1936). Mental tests used in genetic studies: The performance of related individuals on tests mainly educative and mainly reproductive. *MSc Thesis, University of London*.
- Raven, J. C. (1938) Raven's progressive matrices (1938): sets A, B, C, D, E. *Melbourne: Australian Council for Educational Research; 1938*.