Interpretative report

Assessment report of the attention profile

nesplora
Attention Adults
aquarium

This report is intended to be used by the test administrator as an interpretive aid.

This report should not be used as the sole basis for clinical diagnosis or intervention.

FULL NAME	**MARKEL ANONYMOUS**
GENDER	**MALE**
DATE OF BIRTH	**02/12/2004**
AGE	**16**
EXECUTION OF THE TEST	**07/01/2021 19:19**
DURATION OF THE TEST	**0:11:59**
SCALE USED	**16-40 MALE**
PREVIOUS NOTES	
SUBSEQUENT NOTES	

1. Nesplora Aquarium assessment report

1.1 General Description

Nesplora Aquarium is a Continuous Performance Test (CPT) performed in a virtual environment through a system composed by a headset with motor sensors, headphones and a button to answer to the task. This test is designed to assess attention processes and help in the diagnosis of cognitive disorders.

The virtual environment presented in the headset is similar to a room of an aquarium and the perspective places the subject at the centre of this room. The software continuously shifts the subject's view of the room based on their head movements, providing them with the impression of actually being immersed in the virtual environment.

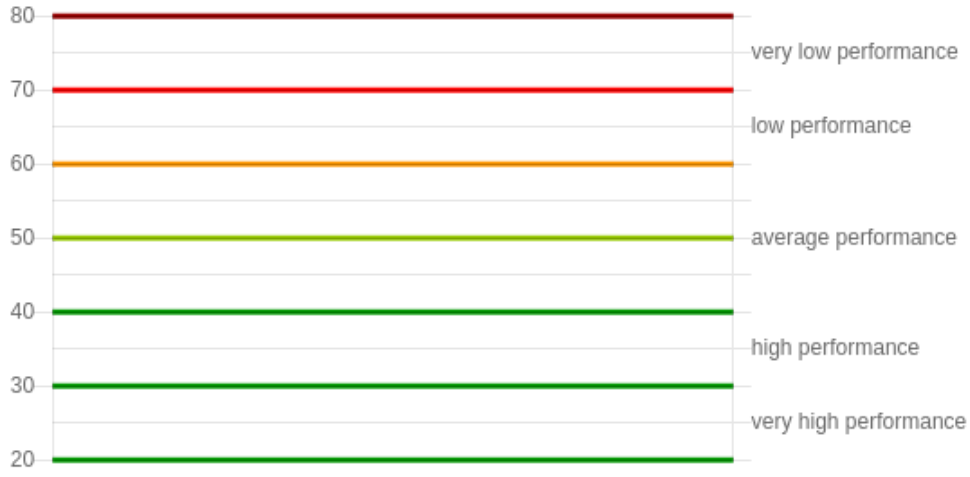
Between 2 rocks in the main aquarium of the room and through the headphones, a series of stimuli are presented to which the subject must respond according to the instructions. The test consists of 3 exercises:

AX [Training]: Task 1, AX Paradigm, The button must be pressed when a given auditory and visual target stimulus appears, whenever it is preceded by another given auditory or visual stimulus. This task has the function of learning the stimuli which is going to appear. The data obtained are not presented in this clinical report.

DUAL Performance: Task 2, Xno Paradigm. The subject must press the button with all presented stimuli except for a given visual stimulus and a given auditory stimulus (different than visual).

DUAL+I Performance: Task 3, Dual Xno-Paradigm. The subject must press the button with all presented stimuli except for a given visual stimulus and a given auditory stimulus (different than visual). The stimuli not to be pressed on are the inverse of the previous task, so it includes interference (+I).

Data are displayed in graphs and tables along with text explaining the T-scores obtained in relation to performance.



2. EVI - Embedded Validity Indicator

For the filtering of this assessment, an EVI (Embedded validity indicator) has been used. This ratio (EVI) shows performance problems during the administration of the test. This allows the professional to assess whether problems of performance incongruence are detected that could affect the results before a clinical diagnosis is considered.

In the case of **Markel**, **this assessment meets the requirements to be considered valid in its execution and the results can be analysed**.

3. General indices

ATTENTION

It is the ability to sustain attention for long periods of time, or what is known as concentration.

61

HIT DISCREPANCY

It is the accumulation of errors in one part of the task.

68

PROCESSING

Mean reaction time is a highly reliable measure of processing speed and answer consistency.

35

VIGILANCE

Deviation of reaction time is a measure of variability and answer inconsistency, and it can be a measure of a decrease in vigilance

55

INHIBITORY CONTROL

Commissions are errors interpreted as measures of lack of response inhibition or motor dyscontrol

55

SWITCHING

It is the ability to switch tasks quickly, this index reflects the difference in performance after the change, indicating whether it is effective.

47

PERSEVERATIONS

These are the accumulated errors from completing past instructions that do not correspond to the current task.

55

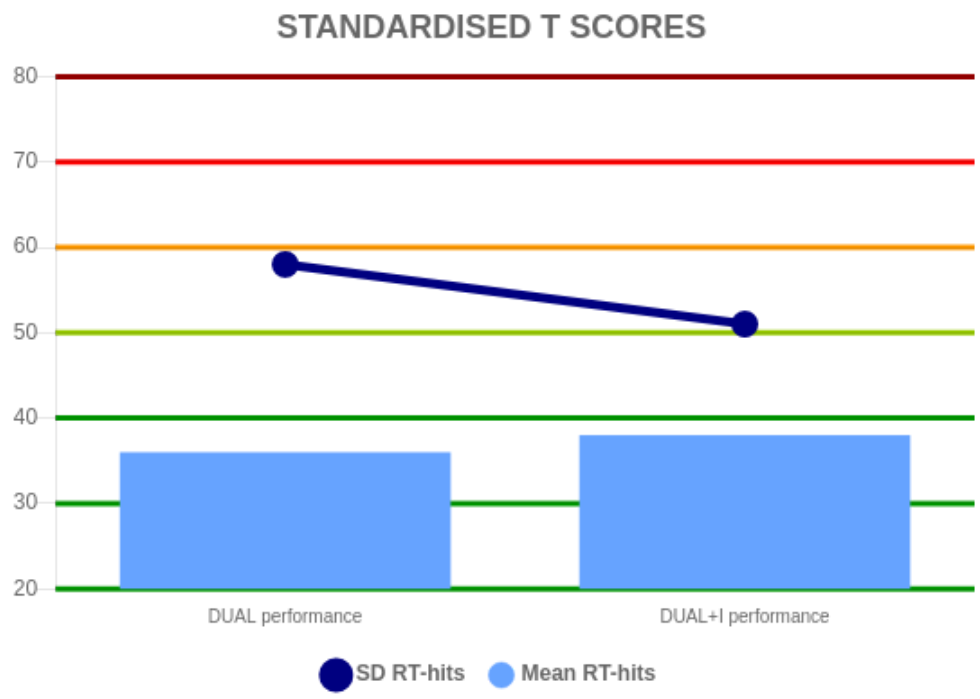
WORKING MEMORY

It is the ability to remember different instructions for different types of stimuli.

41

4. Speed of response and sustained attention

The following tables present the scores related to the speed of response and attentional vigilance during the test:



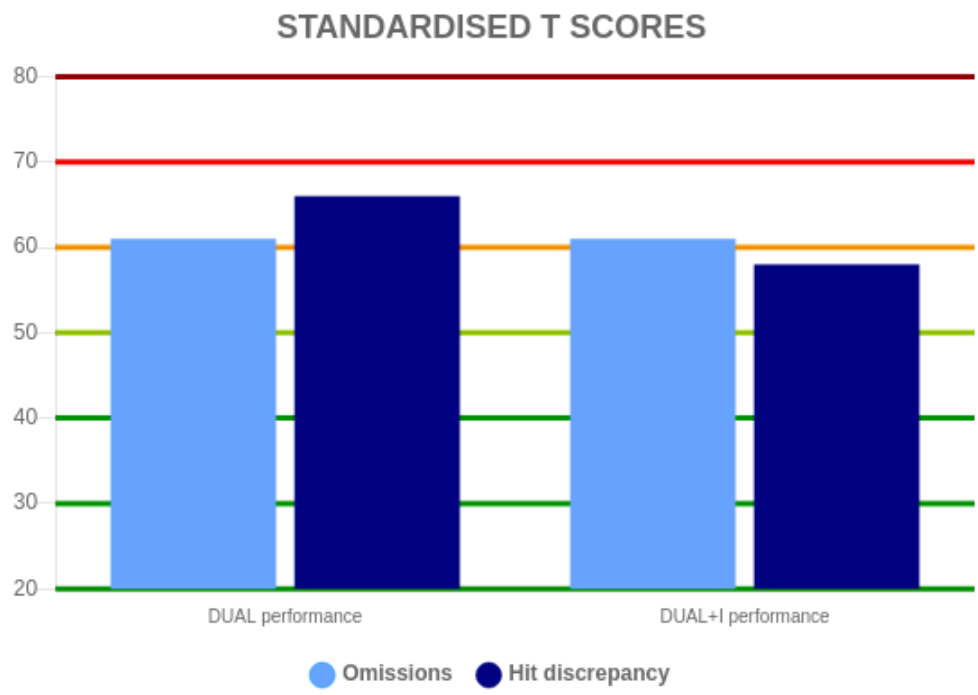
	DUAL PERFORMANCE			DUAL+I PERFORMANCE			TOTAL		
	Pc	Raw	T score	Pc	Raw	T score	Pc	Raw	T score
RT-hits	8	780.19	36	12	810.6	38	7	795.2	35
SD RT-hits	80	317.3	58	55	306.67	51	71	312.46	55

Mean RT (reaction time)-hits: It indicates the average time from the moment the stimulus appears until the button is pressed in the case of correct presses. This measure represents the average speed of response at which the stimulus is processed before responding. Markel obtained a high performance in this variable.

Standard deviation of RT in hits: It indicates the variability of the RT in hits throughout the test. It is considered a measure of response consistency, and it can be a sign of fluctuating sustained attention or decreased vigilance during the test. Markel obtained an average performance in this variable.

5. Attentional arousal and response consistency

The following tables present the scores related to alertness and response consistency during the test:



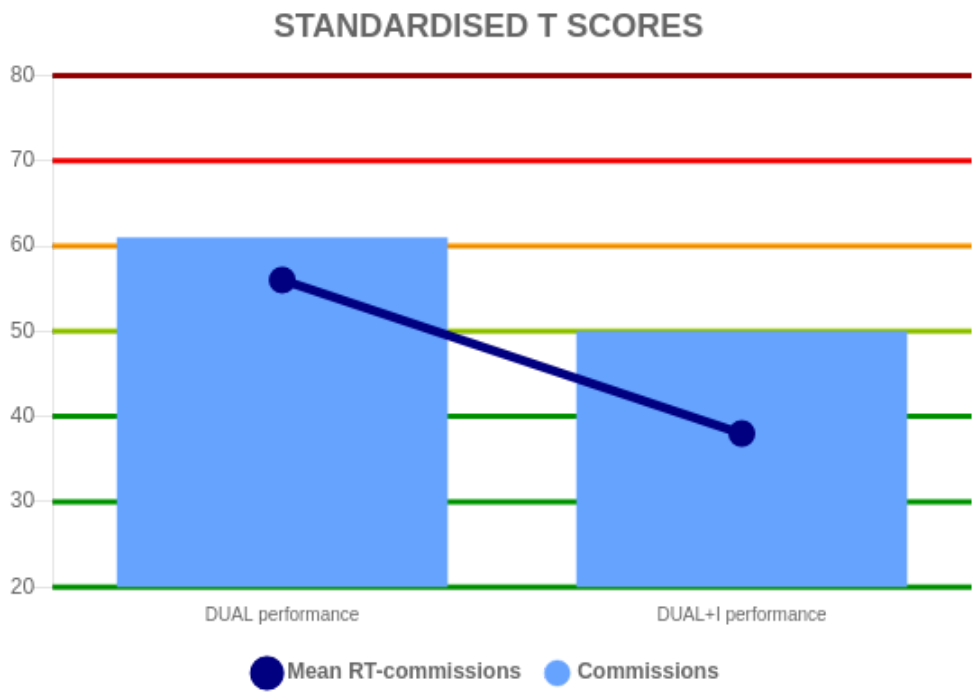
	DUAL PERFORMANCE			DUAL+ I PERFORMANCE			TOTAL		
	Pc	Raw	T score	Pc	Raw	T score	Pc	Raw	T score
Omissions	86	18	61	86	20	61	86	38	61
Hit discrepancy	95	9	66	79	3	58	96	6	68

Omission errors: They occur when Markel has to press the button when the target stimulus appears but they don't. This variable is indicative of level of alertness (arousal) to respond to the target stimuli. Markel obtained a low performance in this variable.

Hit discrepancy between blocks: This score is obtained by comparing the hits in the first half of the task and those obtained in the second half of the task. This measure is considered an indicator of response consistency and fatigue during the task. Markel has obtained a low performance in this variable.

6. Inhibitory control

The following tables present the scores related to impulsivity and inhibitory control.



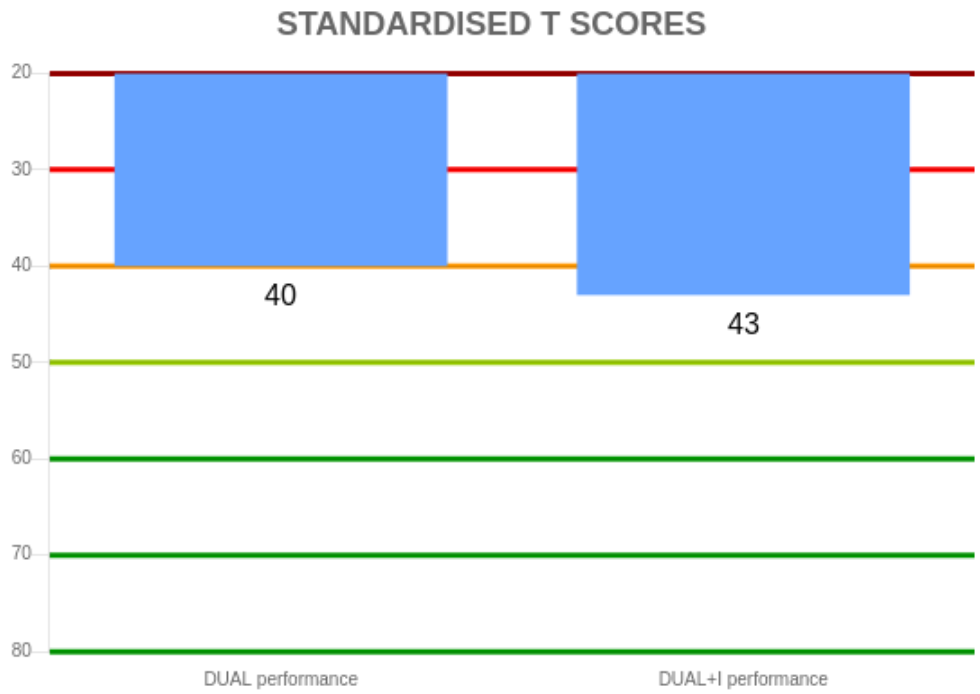
	DUAL PERFORMANCE			DUAL+I PERFORMANCE			TOTAL		
	Pc	Raw	T score	Pc	Raw	T score	Pc	Raw	T score
Commissions	87	11	61	48	9	50	69	20	55
RT-commissions	72	748.09	56	12	562	38	40	664.35	47

Commission errors: They occur when Markel must not press the button when the presented stimulus appears and, however, they press it. This variable is indicative of impulsivity or inhibitory control, which are involved in selective attention processes. Markel has obtained an average performance in this variable.

Mean RT (reaction time)-commissions: It indicates the average time from the moment the stimulus appears until the button is pressed in the case of incorrect presses (commissions). This measure provides an explanatory and complementary character to commission errors. Low reaction times are related to greater impulsivity and/or hyperactivity. High reaction times are considered a secondary measure of inattention. Markel has obtained an average performance in this variable.

7. Working memory (DUAL performance)

In Nesplora Aquarium, 2 dual performance tasks are carried out, which involve a load in the Central Executive System. The following graph and table present the hit rate for these tasks:



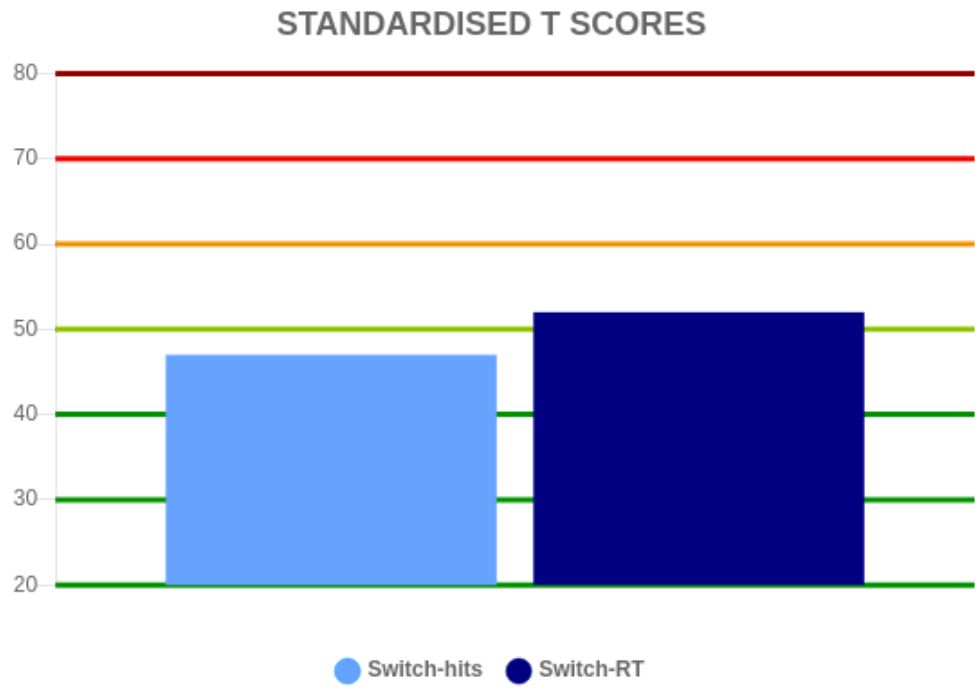
	DUAL PERFORMANCE			DUAL+ I PERFORMANCE			TOTAL		
	Pc	Raw	T score	Pc	Raw	T score	Pc	Raw	T score
WM index	17	111	40	24	111	43	19	111	41

*Scores must be interpreted inversely, as they are based on the number of hits in the task.

Working memory index It is defined by Markel's overall performance in the dual performance tasks. The parallel processing of both sensory modalities defines these exercises as dual performance tasks. This index measures the capacity for parallel processing during the performance of the task. Markel has obtained an average performance in this variable.

8. Switching (adaptation to change) and interference

In Nesplora Aquarium, the change between tasks 2 and 3 represents a challenge for the switching capacity or change of attentional resources. The following graph shows the indices corresponding to this capacity.



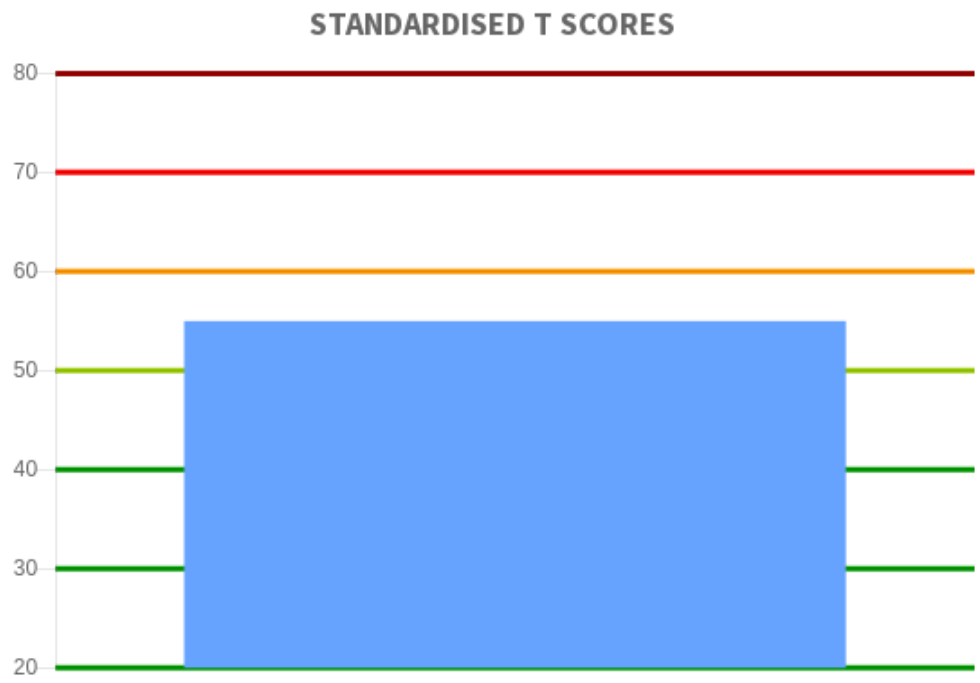
	TOTAL		
	Pc	**Raw**	**T score**
Switching	39	0	47
Switching RT-hits	57	706	52

Switching: This index indicates the ability to adapt to change, which reflects part of Markel's cognitive flexibility. The score shows the difference between the number of hits in the last part of task 2 and the number of hits at the beginning of task 3. Markel has obtained an average performance in this variable.

Switching RT-hits: This index indicates the ability to adapt to change, which reflects part of Markel's cognitive flexibility. The score shows the difference between the hit reaction time in the last part of task 2 and the number of hits at the beginning of task 3. Markel has obtained an average performance in this variable.

9. Perseverations

The following graph and table present Markel's perseverative error rate. These are those errors in task 3 (XnoDUAL) that are related to the target stimuli of the previous task:



	TOTAL		
	Pc	**Raw**	**T score**
Perseverative errors	67	17	55

Perseverative errors: This type of error occurs in task 3 (XnoDUAL) when Markel responds to the task by following the instructions of the previous task, in other words, when omitting to press on the visual or auditory target stimulus of the previous task or when making commission errors. The score in this index shows Markel's capacity for interference control, who has obtained an average performance in this variable.

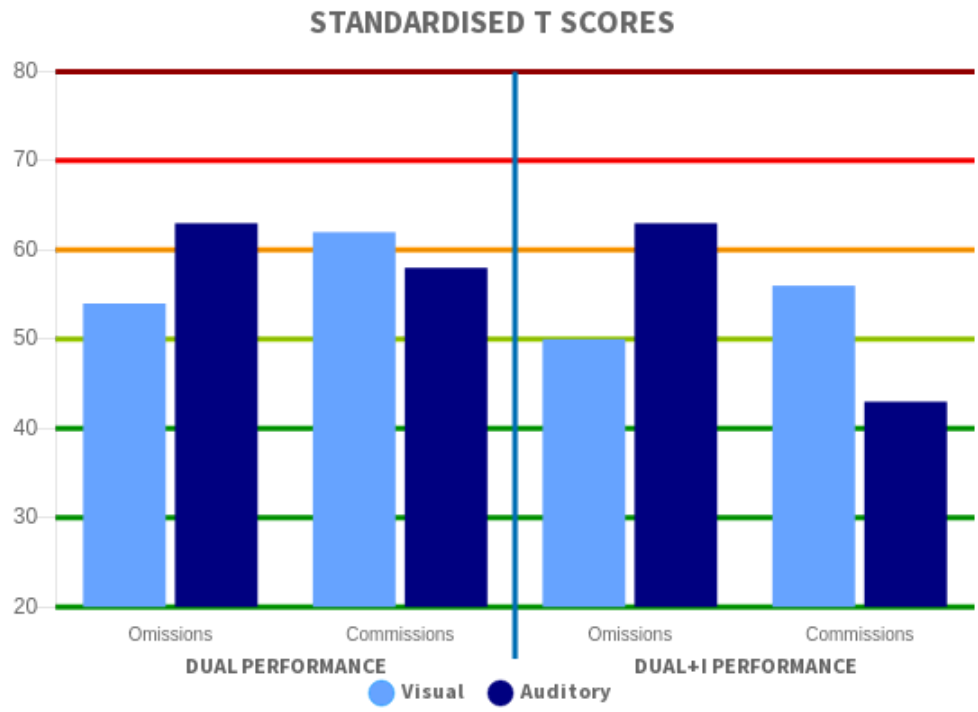
10. Performance depending on the sensory channel

In the tasks performed by Markel both visual and auditory stimuli have been involved. In the following tables, the performance between the visual and auditory stimuli in the different attention variables is compared.

	VISUAL			AUDITORY		
	Pc	**Raw**	**T score**	**Pc**	**Raw**	**T score**
Omissions	49	2	50	90	36	63
Commissions	80	16	58	45	4	49
RT-hits	11	667.63	38	26	992.74	43
SD RT-hits	47	178.81	49	86	367.53	61

11. Visual/Auditory performance by tasks

In the following graph, we can observe how the scores in omissions and commissions have evolved throughout the task in both sensory modalities



Visual performance:

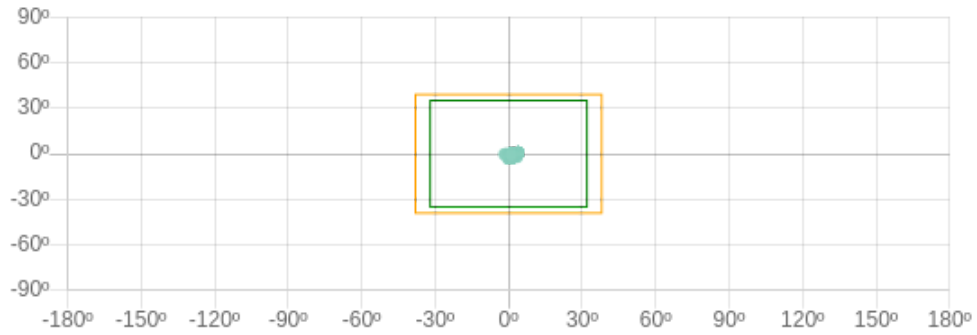
	DUAL PERFORMANCE			DUAL+I PERFORMANCE		
	Pc	Raw	T score	Pc	Raw	T score
Omissions	66	1	54	49	1	50
Commissions	88	8	62	73	8	56

Auditory performance:

	DUAL PERFORMANCE			DUAL+I PERFORMANCE		
	Pc	Raw	T score	Pc	Raw	T score
Omissions	90	17	63	91	19	63
Commissions	79	3	58	24	1	43

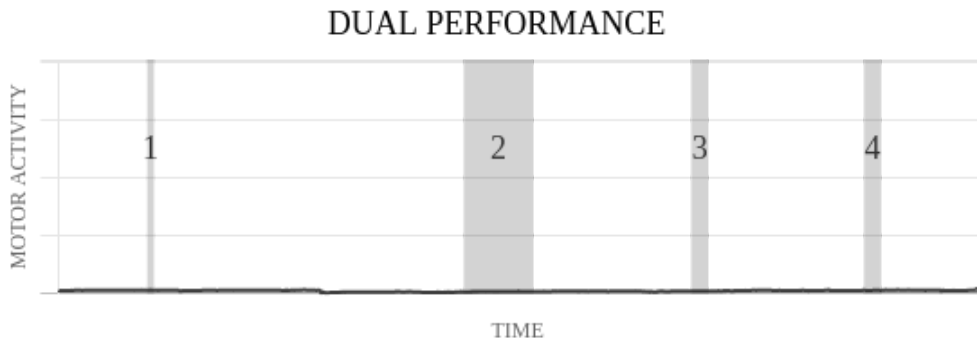
12. Motor activity

The following graph shows Markel's movement throughout the test. The yellow frame represents those areas from which the visual stimuli can be seen. Outside of that frame, it is impossible to see the visual stimuli to perform the task.

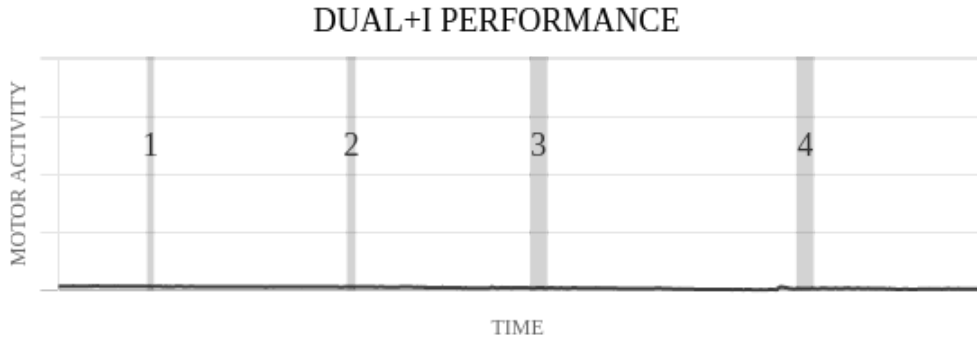


These graphs indicate Markel's activity longitudinally along the 2 tasks and in relation to the distractors presented during the task:

13. Motor activity graphs in relation to the distractors



DUAL PERFORMANCE	
1. Public address system - coffee	VISUAL
2. Child	VISUAL
3. Cough	AUDITORY
4. Bubbles	VISUAL



DUAL+I PERFORMANCE	
1. Telephone	AUDITORY
2. Door	AUDITORY
3. Baby	AUDITORY
4. Public address system - photos	VISUAL

Summary table