



Interpretative report

Assessment report
of the executive
function cognitive
profile



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 ANON
SEX	MALE
DATE OF BIRTH	29/07/2007
AGE	13
EXECUTION OF THE TEST	17/05/2021 16:31
DURATION OF THE TEST	0:39:5
SCALE USED	12-16 MALE
PREVIOUS NOTES	
SUBSEQUENT NOTES	

1. Nesplora Ice Cream assessment report

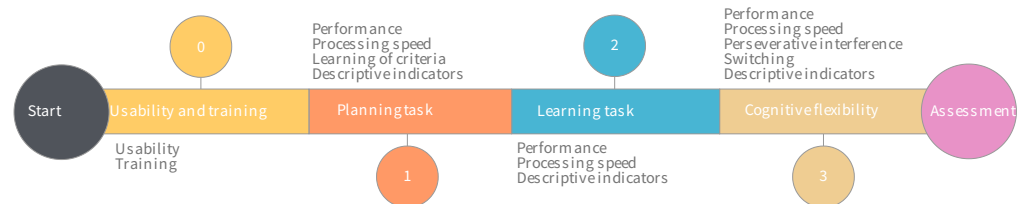
1.1 General description

Nesplora Ice Cream is a Continuous Performance Test (CPT) that is performed in a virtual environment through the use of a VR headset equipped with motion sensors, and headphones. This instrument is designed to assess the different components of executive and learning processes, providing useful information to outline the functioning profile of people from 8 to 80 years old and to guide the diagnosis in the neuropsychological field, such as in cases of cognitive disorders, dysexecutive syndromes and pathologies with frontal involvement and/or in monitoring the effectiveness of current treatment.

The test is divided into two parts, each with two different tasks, which are presented one after the other to the examinee for the assessment of the different components of executive functions:

Task 1: Arrangement of the elements with precise rules of seriation and classification

Task 2: Performance in working memory, learning and execution speed tasks



A first summary of the scores obtained in the main subtests that make up the general indices is presented below and, depending on the examinee's performance, a measure of correlation with IQ is reported. It is composed of three general indices: Planning, Working Memory and Cognitive Flexibility, with their respective sub-indices. For each of these, a score expressed in T-scores is given:

- **Planning:** Hits, Assignment time;
- **Working memory:** Correct services, Consultations, Net hits and Execution speed;
- **Cognitive Flexibility:** Switching, Interferences, Perseverations and Execution speed

Other performance indicators and errors are also presented.




1. Nesplora Ice Cream assessment report

The results are presented in graphs and tables. In each of the sections, the T-scores obtained are explained in relation to the examinee's performance: from 20 to 30 performance is considered very low in relation to the specific normative reference group, from 31 to 40 performance is low, from 41 to 60 performance is average, from 61 to 70 performance is high, and from 71 to 80 performance is very high. In addition, percentile scores for the performance levels are presented in the tables of the report for ease of reading.

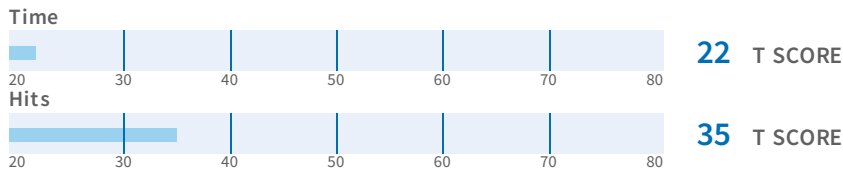
T SCORE RANGE	PERFORMANCE
20-30	VERY LOW
31-40	LOW
41-59	AVERAGE
60-69	HIGH
70-80	VERY HIGH

For a better interpretation of the report, please refer to the Nesplora Ice Cream manual or interpretation guide.

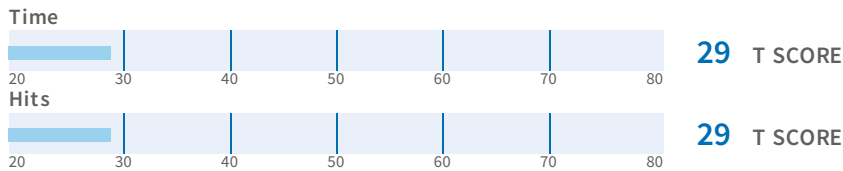
2. General indices

 <h3>PLANNING</h3> <p>It is the ability to use strategies, to carry out mental rehearsals on possible solutions and their consequences.</p> <p>29</p>	 <h3>WORKING MEMORY</h3> <p>Working memory allows us to maintain information with which to work towards accomplishing tasks.</p> <p>29</p>	 <h3>COGNITIVE FLEXIBILITY</h3> <p>It is the ability to monitor a situation, weigh different strategies and discard learned solutions in favour of new, more adaptive ones.</p> <p>36</p>
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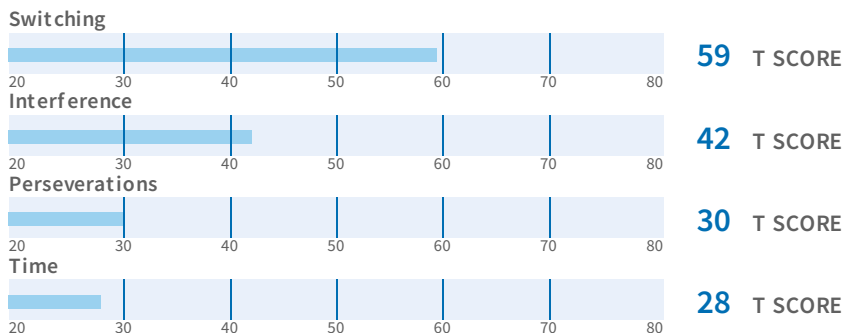
Planning



Working memory



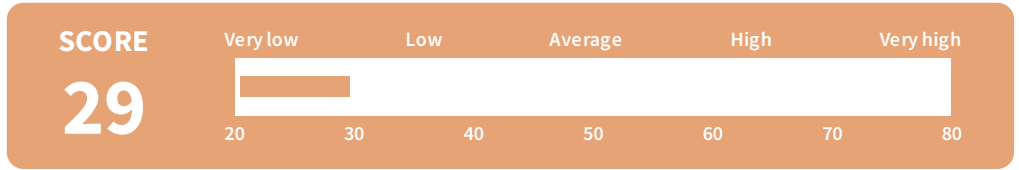
Cognitive flexibility



Intelligence quotient Indicator

The Ice Cream study and its equivalent with IQ studies, allow us to affirm that according to the results obtained by Markel, they could be with a 81% probability in a range of 90 to 109 IQ.

3. Planning



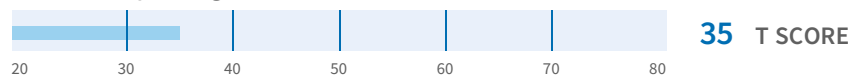
This index records the ability to use problem-solving strategies: sequencing, abstracting, breaking down a global problem into parts to suit the achievement of a goal. It allows mental rehearsal of possible solutions and their consequences before trying them out.

Description of the indices

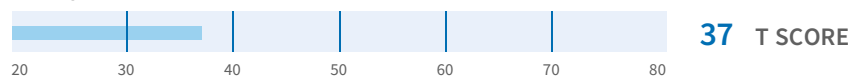
Planning: Indicates the number of times that Markel has correctly set the order of the items according to the preferences of the assessment environment. This variable must be interpreted as a measure of Markel's ability to plan action according to the demands of the environment. Markel has obtained a score of 35 in the task.

Note: Assess the errors made in the learning section of the planning task to obtain qualitative data on this measure.

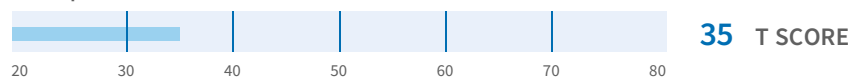
Total hits in planning



Total part 1

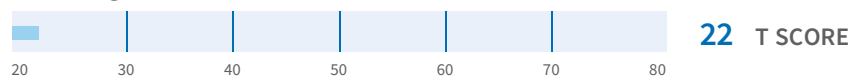


Total part 2



Assignment time: Indicates the total time used by Markel to do the assignment task. Consideration should be given to whether there is any relationship between time and the hit or error. Markel has obtained a score of 22 in the task.

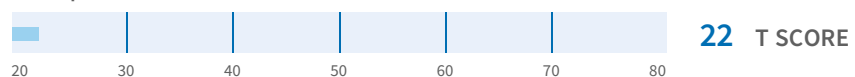
Total assignment time



Total part 1



Total part 2

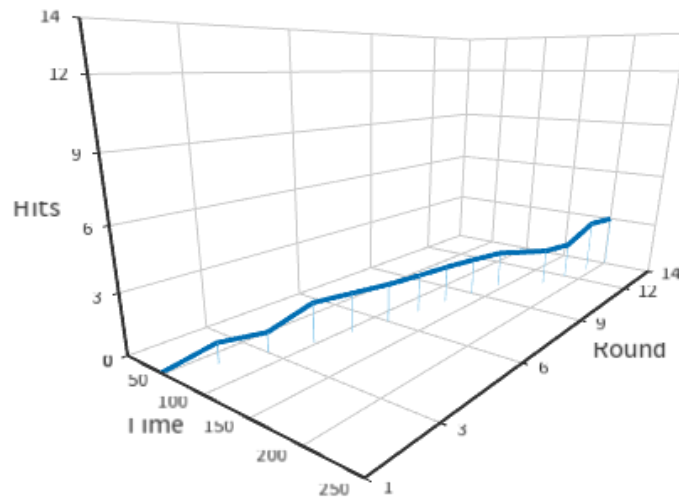


	PART 1			PART 2			TOTAL		
	Raw	T score	Pc	Raw	T score	Pc	Raw	T score	Pc
Total hits	2	37	10	1	35	8	3	35	7
Assignment time	200.4	22	1	122.3	27	2	78.1	22	1

3. Planning

3.1 Learning in the planning task

In Nesplora Ice Cream, Markel must apply the preferences required by the environment to the different configurations presented during the test. This graph represents the hits and time spent in each round. As they accumulate, the ascending function reflects how easy it is for Markel to adapt to these objectives, learn the rules and make mistakes.



Planning performance table

	1	2	3	4	5	6	7	Total P1	8	9	10	11	12	13	14	Total P2	Total
Hits	0	1	0	1	0	0	0	2	0	0	0	0	0	1	0	1	3
Time (sec)	47.5	20.4	14.7	14.3	9.6	9.6	6.3	122.3	5.2	7.2	8.9	33	7.7	9.1	7	78.1	200.4

3.2 Indicators of the planning task

Cognitive load: This indicator reflects how changes in other simultaneous tasks may affect the planning task, which does not change during the test. In this case, the hits have decreased, so the cognitive load has increased and planning performance has deteriorated.

Fatigue: This indicator is expressed as an increase in task performance time throughout the test. In this case, Markel does not show signs of fatigue in the second part of the test.

Procedural planning and prospective memory: This consists of setting behaviours at different stages of planning. Markel must assume a behavioural programming in each part of the test, and must prospectively remember some criteria. The measure is based on the increase or decrease of the execution time from the time they have to do the action until they perform it. In this case, Markel has improved in this condition; meaning that procedural planning has been learned and prospective memory is adequate.

Consequential planning: In the task, the examinee is given a set of rules to establish the order and they are asked, after setting the turn order, to attend to the "clients" in the order they have established. In this case, the rules are not followed, but the established order is maintained.

Note: It is important to assess whether errors in the rules remain after repetition of the instructions.

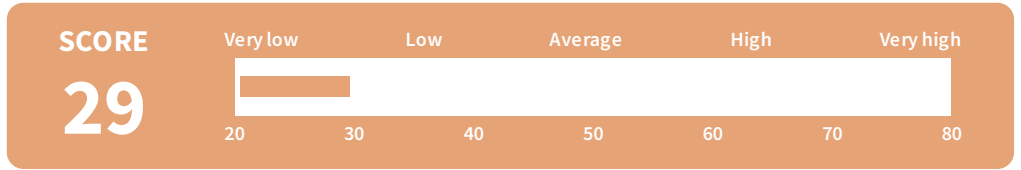
In this case, the number of rounds in which Markel has followed their own turn order is 2.

R1 | R14

Impulsivity: During the task the examinee is asked not to perform certain actions, 3 times Markel performs actions that are not allowed, which may be a sign of impulsivity or lack of regulation.

Incorrect assignments: Markel has made 15 incorrect assignments. Their performance in this variable is 31.

4. Working memory

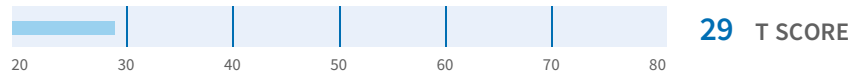


It is the ability to register, encode and maintain information in order to use it in a task. In Nesplora Ice Cream, Markel must try to create a strategy to learn the combination of 4 services. They can get help, but their performance is penalised in the learning curve if they do so.

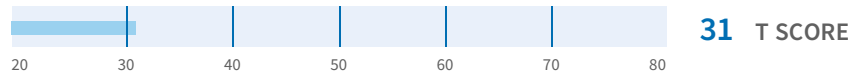
Description of the indices

Correct services: This score refers to the handing of the correct order, regardless of whether the reference was consulted. Markel has obtained a total of 29.

Total correct services



Total part 1



Total part 2



Consultations: Indicates the number of times the examinee has consulted the references to perform the services. Markel has obtained a total of 29.

Total consultations



Total part 1



Total part 2



Net hits: This variable indicates the number of services the examinee has successfully performed without consulting the references. Markel has obtained a total of 35.

Total net hits



Total part 1



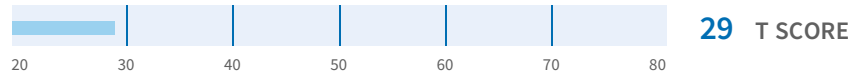
Total part 2



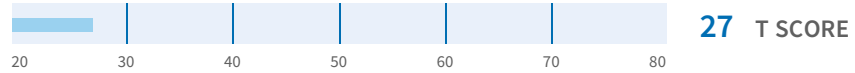
4. Working memory

Service time: This variable indicates the total time taken to process and perform the services. Markel has obtained a total of 29

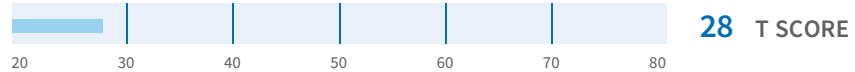
Total service time



Total part 1

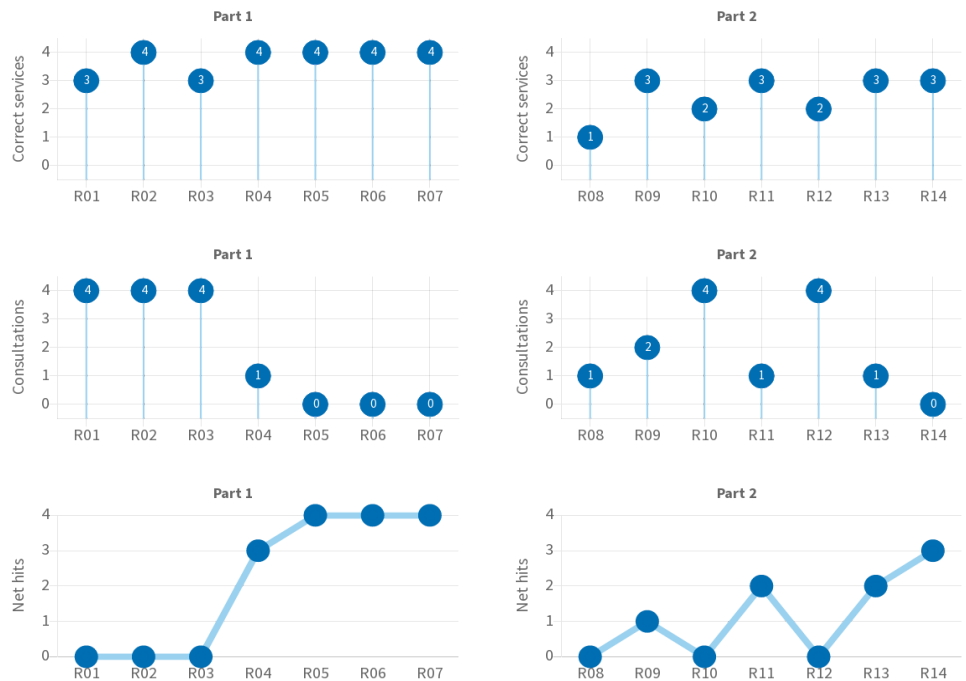


Total part 2



	PART 1			PART 2			TOTAL		
	Raw	T score	Pc	Raw	T score	Pc	Raw	T score	Pc
Correct services	15	31	4	8	31	3	23	29	2
Consultations	26	29	2	13	29	2	13	30	3
Net hits	43	35	8	26	41	20	17	33	5
Service time	766.2	29	2	361.4	27	2	404.8	28	2

4.1 Execution map

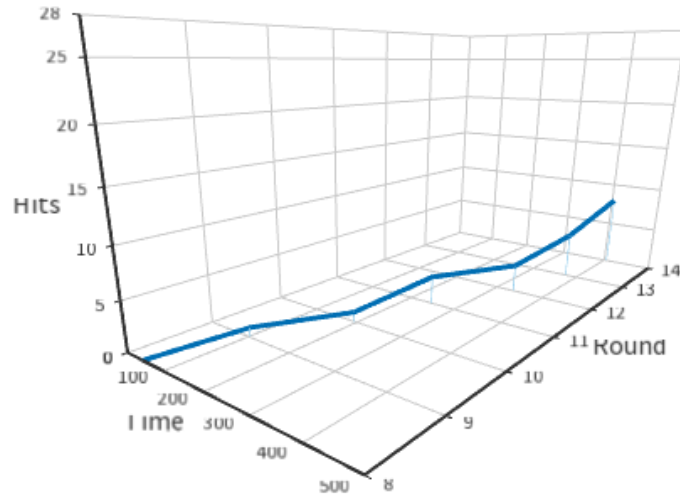
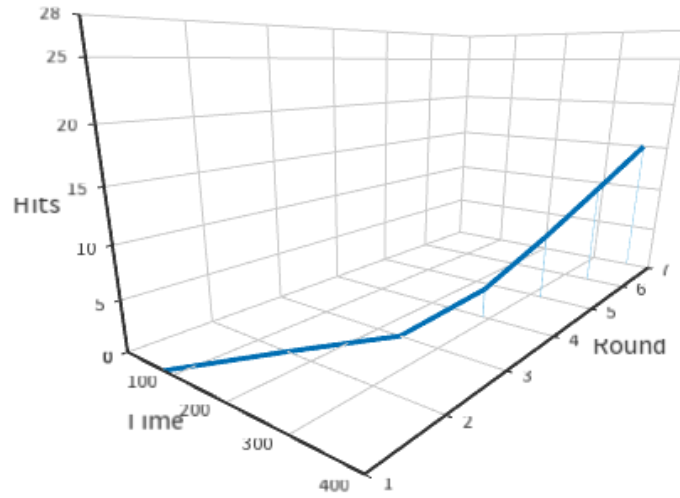


Working memory execution table

	1	2	3	4	5	6	7	Total P1	8	9	10	11	12	13	14	Total P2	Total
Hits	0	0	0	3	4	4	4	15	0	1	0	2	0	2	3	8	23
Time (sec)	81.3	75.5	81.8	51.1	27.5	22.7	21.6	361.4	43.9	60.8	89.2	54.4	88	39.7	28.8	404.8	766.2

4. Working memory

4.2 Learning curve



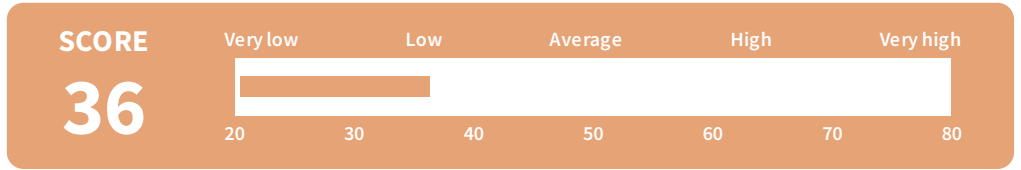
Time per service in working memory table

This table describes Markel's execution speed, expressed in seconds, for each of the rounds.

R1				R2				R3				R4				R5				R6				R7			
S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4
21.6	19.3	19.4	21	20.5	18.3	16.9	19.7	19.5	25.4	19.8	17.1	19.7	17.4	7.6	6.4	11.4	5.2	4.6	6.3	5.8	5.3	5	6.7	5.4	5.8	5.3	5.1

R8				R9				R10				R11				R12				R13				R14			
S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3	S4
8.1	17.7	10.2	7.8	6.4	22.2	10.3	22	20.2	16.7	32.5	19.8	20.1	13.6	10.9	9.8	16.5	20.5	31.2	19.8	7.8	8	18.3	5.6	6.2	7	6.4	9.2

5. Cognitive flexibility



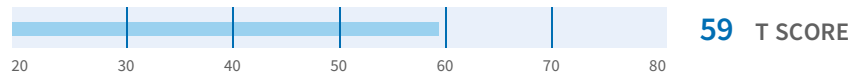
It is the ability to monitor a situation, weigh different strategies and discard learned solutions in favour of new, more adaptive ones. In this section, the interferences and perseverations that, after the set change, affect learning and how it adapts to the change itself are described.

Description of the indices

Switching: This is the task switching cost in time and hits. Markel has obtained a score of 59 in this variable.

Note: Switching is assessed as long as there has been positive learning in part 1

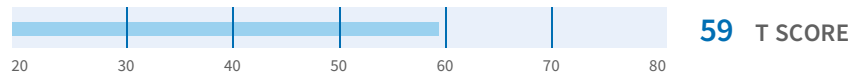
Switching



Switching hits



Switching time



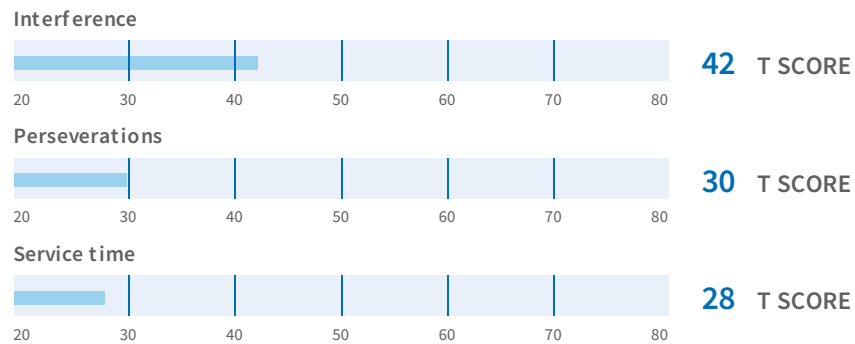
	Raw	T score	Pc
Switching	-14	59	82
Switching hits	57	30	3
Switching time	-2	59	81

Interference: This is generated when the performance of a previous task negatively affects the performance of a subsequent task. This score marks the difference between the hits on the service before and after the set change. It is obtained from an increase of errors in the second part of the test that are not considered perseverations. Markel has obtained a score of 42 in this variable.

Perseverations: This refers to maintaining learned instructions or behaviours that are no longer useful in the new situation. It is obtained by completing the service instructions associated with set 1 when they should hand those associated with set 2. Markel has obtained a score of 30 in this variable.

5. Cognitive flexibility

Service time: This refers specifically to the service after the task change. This score shows the time needed to complete a round after the change, Markel has obtained a score of 28.



	Raw	T score	Pc
Interference	63	42	21
Perseverations	5	30	3
Service time	404.8	28	2

5.1 Indicators of cognitive flexibility

These indicators reflect forms of behavioural regulation or self-correction.

Monitoring of execution: The ability to monitor oneself is reflected in the possibility of becoming aware of whether a service is done well before handing it and discarding it in the event of assessing that it is not correct.

Markel has completed the task with error correction in:

Part 1: 1

Part 2: 2

Time monitoring: Markel has not used the reference to check their execution time during testing.

Cognitive style: In order to take the test, the examinee is asked to do the tasks correctly; for this purpose, consultation references are made available. However, they are explicitly asked to use them as little as possible. Thus, the median number of consultations compared to the examinee may indicate risk-aversion, with increased safe options, or risky decision-making.

Consultations in the working memory task: Markel has consulted the references available for this task 26 times.

Consultations in the planning task: Markel has consulted the references available for this task 3 times.

In their normative group, the median number of consultations to learn the task is 3 in learning and 0 in planning.