Jun 08, 2022

DTS-TOT protocol

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[1]ISAE-SUPAERO / ENAC; [2]ISAE-SUPAERO; [3]ENAC

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1. Cognitive Flexibility, the ability to adapt behavior and thought to the environment is one of the most important aspects of human cognition. A classical paradigm to study cognitive flexibility is the task-switching paradigm. These paradigms require the participant to switch between two or more relatively simple tasks continuously. Results consistently show that switching between tasks results in task-switching costs (TSC) in the form of increased reaction times and error likelihood following a switch. These effects have been shown in a wide array of circumstances, however, several factors have yet to be investigated within the context of cognitive flexibility. Similarity is an important factor for research within cognitive flexibility as most fundamental research has only focused on very similar tasks, rather than being ecologically valid. Beyond similarity conflict, which is elicited when a participant is confronted with incongruent information as to the correct response during a task, needs to also be accounted for. Finally, in the context of increasing ecological validity mental fatigue with its established effect on cognitive flexibility needs to also be taken into consideration.

DOI

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Cognitive Flexibility, Task-Switching, Mental Fatigue, Cogntivie Psychology

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64111

Participants must not be colourblind.

Desktop Computer, WIndows 10, Matlab 2021b with PsychToolbox (http://psychtoolbox.org/)

EXCLUSION CRITERIA:

- protected person;
- presence of known neuropsychological disorder;
- significant visual or hearing impairment;
- taking psychotropic medication or substance;
- epilepsy;
- pregnancy;
- nursing;
- frequent headaches;
  colourblindness

INCLUSION CRITERIA

Age between 18 and 60 years old,

- you have a level of study baccalaureate minimum,
- you have normal (or corrected) vision and hearing,
- you are affiliated with social security,
- you have signed an informed consent form.

:

DISCLAIMER – FOR INFORMATIONAL PURPOSES ONLY; USE AT YOUR OWN RISK

As detailed in the protocol participants will be required to sign the information sheet and the informed consent sheet before starting with the questionnaires and the testing session.

Training Session 50m

1 Participant Arrival

1.1 Informing the Participant about the Nature of the Experiment

1.2 Colourblindness Test

1.3 Signing of Information Sheet

1.4 Signing of Informed Consent

2 Questionnaires

2.1 Demographics Questionnaire

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2.2 Edinburgh handedness Questionnaire

2.3 St.Mary's Sleep Questionnaire

2.4 KSS

2.5 SPS

3 Training

3.1 Task Explanation

3.2 Block 1-2
Training of 96 Stimuli (per Block) with Feedback

3.3 Block 3-5
Training of 96 Stimuli (per Block) without Feedback

3.4 If performance is not sufficient, then additional blocks of training will be performed

4 Finalization

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4.1 KSS

4.2 SPS

4.3 Payment 5€

Testing Session 1h 20m

5 Participant Arrival

5.1 Explaining the second session to the participant

6 Questionnaires

6.1 St. Mary's Hospital Sleep Questionnaire

6.2 KSS

6.3 SPS

7 Training

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7.1 Task Explanation

7.2 1 Block (96 trials) half with feedback, half without

8 Testing Session

8.1 8 Blocks (288 trials) with 30 seconds rest in between

9 Finalization

9.1 SPS

9.2 KSS

10 Payment of 15€

Single Trial Explanation

11 Interstimulus Interval from jitter 350-850ms with mean 600ms

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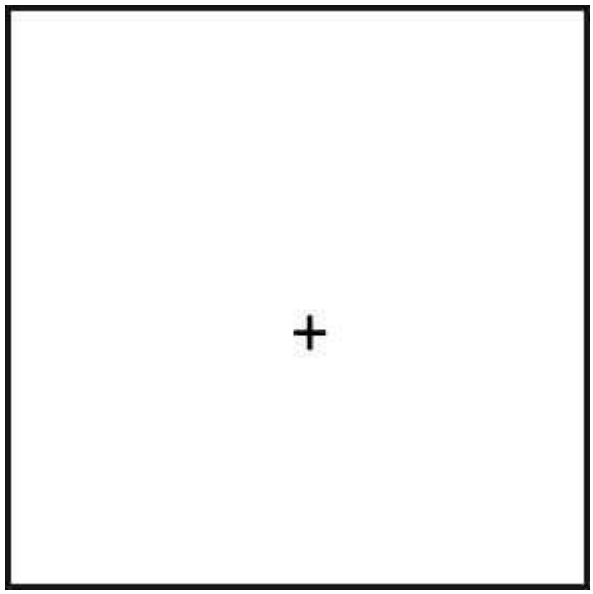
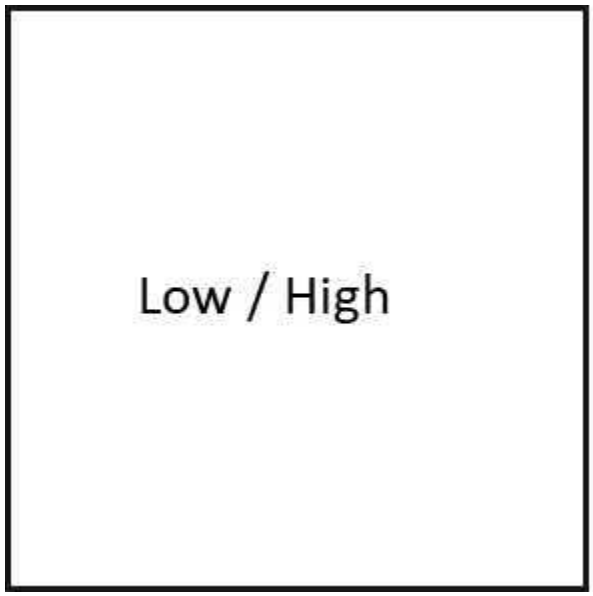


12 Instruction 400ms



13 Stimulus

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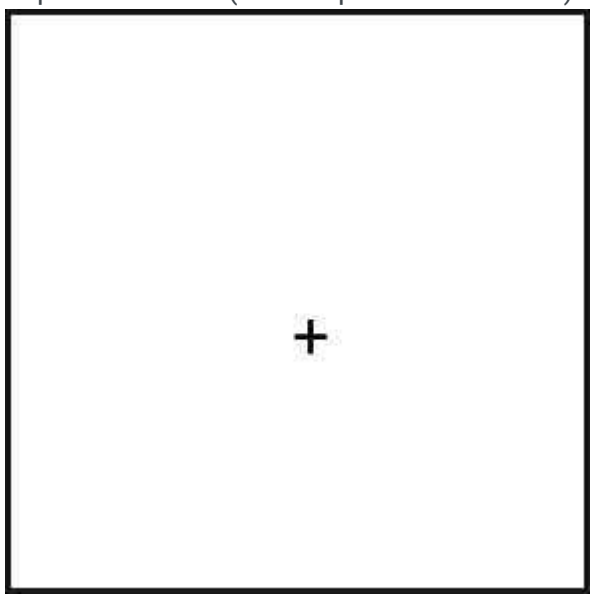
14 Response window (until response is recorded)



15 Feedback (in trials with Feedback)

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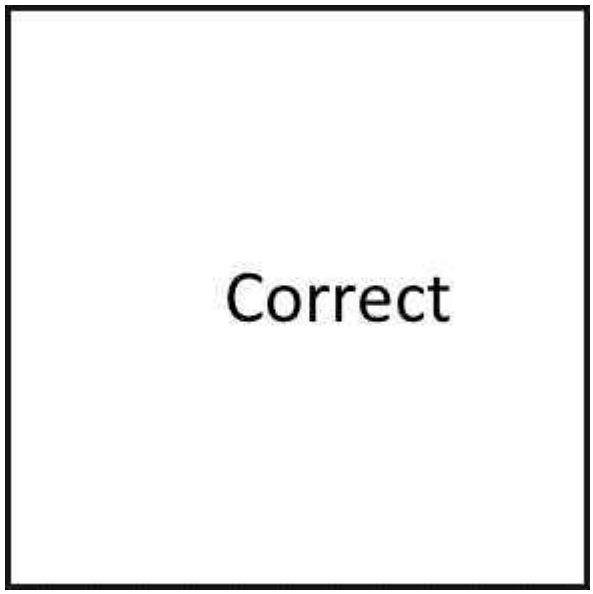

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