

Supplementary Information

Instructions on how to report the perception of effort for the continuous tracking task

You are going to perform a tracking task on the computer. This tracking task requires you to manipulate a joystick using your thumb to track the moving target on a screen. The goal of the task is to keep the red dot as accurately as you can in the center of the white moving circle.

Several times during the experiment, you will be asked to rate the intensity of the effort you have invested to perform the task as accurately as possible. In other words, **we want you to rate the effort invested to move the red dot and keep it in the white circle.**

Effort refers to your engagement in a task, how hard you are trying, and the amount of work that you are putting into completing a task, to achieve its goal. We will ask you to report the intensity of your perception of effort. To do so, please refer to your feeling of how hard, heavy, and strenuous the task is.

On the scale below:

- “No effort at all” refers to a situation when you are not trying at all to do the task.
- “Maximal effort” refers to a situation when you feel that the task is really hard, heavy, and strenuous, and you are trying the hardest you can, to perform the task the best you can.

To rate your effort, you will be asked to place a vertical bar on the line that matches your perception of effort.

What is the level of effort you invested in completing the task?

No effort at all Maximal effort

Please try to quantify your sensation of effort as honestly as you can. Do not underestimate or overestimate your perception of effort. Also, it is very important that you report what you perceive, and not what you believe should be reported. Importantly, please note that we do not compare your rating with other participants.

It is very important that your rating solely includes your perception of effort and not how fatigued or bored you may be.

Instructions pour rapporter la perception de l'effort lors de la tâche de suivi continu :

Vous allez effectuer une tâche de suivi sur ordinateur. Cette tâche de suivi nécessite que vous manipulier un joystick avec votre pouce pour suivre la cible en mouvement sur un écran. L'objectif de la tâche est de maintenir le point rouge aussi précisément que possible au centre du cercle blanc en mouvement.

À plusieurs reprises pendant l'expérience, on vous demandera d'évaluer l'intensité de l'effort que vous avez investi pour accomplir la tâche aussi précisément que possible. Autrement dit, **nous voulons que vous évaluiez l'effort investi pour déplacer le point rouge et le maintenir dans le cercle blanc.**

L'effort fait référence à votre engagement dans une tâche, à quel point vous essayez, et à la quantité de travail que vous investissez pour accomplir une tâche afin d'atteindre son objectif. Nous vous demanderons de rapporter l'intensité de votre perception de l'effort. Pour ce faire, veuillez-vous référer à votre ressenti quant à la difficulté et dureté de la tâche, à quel point celle-ci est éprouvante.

Sur l'échelle ci-dessous :

- "Aucun effort " fait référence à une situation où vous n'essayez pas du tout d'accomplir la tâche.
- "Effort maximal" fait référence à une situation où vous ressentez que la tâche est vraiment dure, difficile et éprouvante, et où vous faites de votre mieux pour accomplir la tâche aussi bien que possible.

Pour évaluer votre effort, on vous demandera de placer une barre verticale sur la ligne qui correspond le mieux à votre perception de l'effort.

Quel effort avez-vous investi pour réaliser la tâche ?

Aucun effort | _____ | Effort maximal

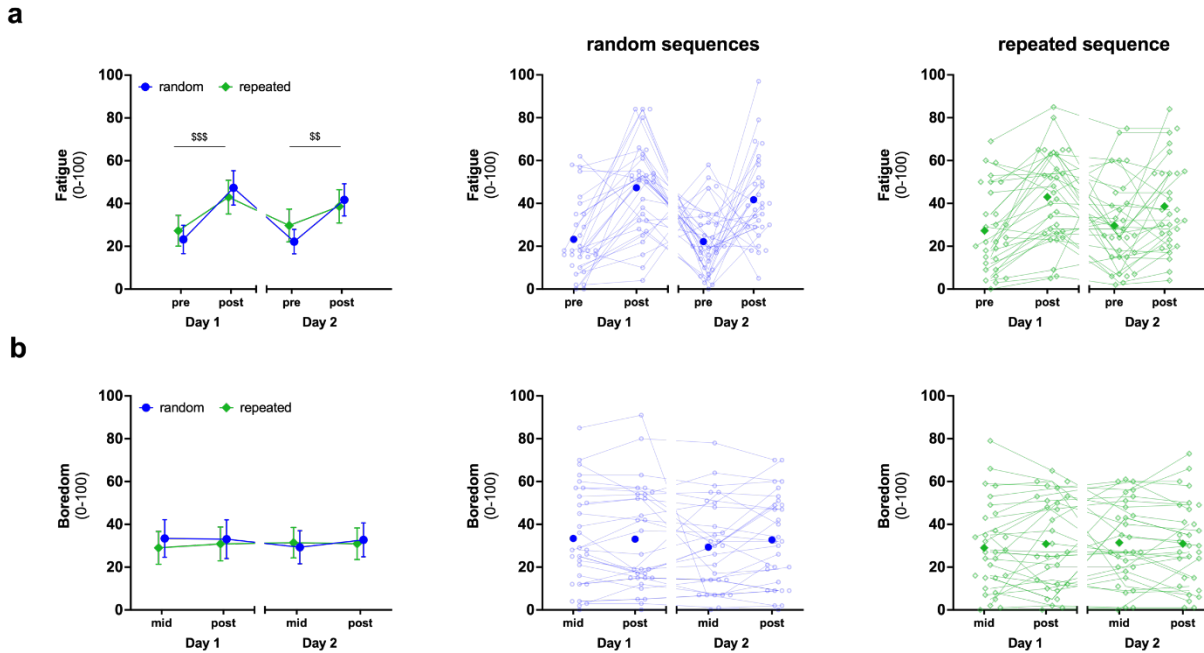
Veuillez essayer de quantifier votre perception de l'effort aussi honnêtement que possible. Ne sous-estimez pas ou surestimez pas votre perception de l'effort. Il est également très important que vous rapportiez ce que vous percevez, et non ce que vous pensez devoir rapporter. Il est important de noter que nous ne comparons pas votre évaluation avec celle d'autres participants.

Il est très important que votre évaluation inclue uniquement votre perception de l'effort et non pas votre niveau de fatigue ou d'ennui.

Changes in fatigue, boredom, and motivation between CTT conditions

Fatigue data is presented in Figure 4A. A main effect of time was observed ($F_{2.44,71.01} = 23.33, p < .001, \eta_p^2 = .446 [0.257, 0.561]$). On Day 1, fatigue increased from block 1 to block 10 ($t_{29} = -6.89, p = .001, d = -1.014 [-1.575, -0.452]$). Fatigue decreased between Day 1 and Day 2 ($t_{29} = 6.14, p = .002, d = 0.988 [0.403, 1.574]$). On Day 2, there was an increase in fatigue from block 1 to block 10 ($t_{29} = -4.92, p = .003, d = -0.735 [-1.238, -0.232]$). There was no main effect of condition ($F_{1,29} = 0.260, p = .614, \eta_p^2 = .009 [0, 0.161]$, and the time $\times$ condition interaction did not reach significance ($F_{3,87} = 2.40, p = .090, \eta_p^2 = .076 [0, 0.174]$).

Boredom data is presented in Figure 4B. There was no main effect of time ($F_{1.45,42.32} = 0.195, p = .753, \eta_p^2 = .007 [0, 0.100]$), condition ($F_{1,29} = 0.483, p = .493, \eta_p^2 = .016 [0, 0.184]$, or time $\times$ condition interaction ($F_{1.53,44.57} = 0.723, p = .456, \eta_p^2 = .024 [0, 0.148]$).



Supplementary Figure S1. Changes in fatigue (Panel a) and boredom (Panel b) during Day 1 (practice) and Day 2 (retention). ^{SSS} Denotes a main effect of time ($p < .001$). ^{SS} Denotes a main effect of time ($p < .01$). Data are presented as means $\pm$ 95% Confidence Interval.

Motivation. For success motivation, there was no main effect of time ($F_{1,29} = 0.171, p = .682, \eta_p^2 = .006 [0, 0.148]$), with similar scores at the beginning of Day 1 (17.18 [15.55, 18.80]) and Day 2 (17.31 [15.71, 18.91]). There was no main effect of condition ($F_{1,29} = 0.070, p = .793, \eta_p^2 = .002 [0, 0.122]$), with similar scores during the repeated sequence condition (17.18 [15.58, 18.77]) and random sequence condition (17.32 [15.59, 19.03]). Moreover, there was no time $\times$ condition interaction ($F_{1,29} = 0.172, p = .681, \eta_p^2 = .006 [0, 0.148]$). For intrinsic motivation, there was a significant time $\times$ condition interaction ($F_{1,29} = 20.71, p < .001, \eta_p^2 = .417 [0.139, 0.598]$). The intrinsic motivation was higher in the random sequence condition on Day 2 (19.46 [17.82, 21.11]) compared to Day 1 (17.70 [16.56, 18.84]) ($t_{29} = -3.72, p = .001, d = -0.463 [-0.854, -0.071]$). On Day 1, the intrinsic motivation was higher in the repeated sequence condition (19.60 [18.09, 21.10]) compared to random sequence condition (17.70 [16.56, 18.84]) ($t_{29} = -3.01, p = .010, d = -0.497 [-1.000, 0.005]$).