Supplement A

First, even in Experiment 1, a forced decision time of 0.1 s was actually set.The illustrated model of the decision time and recorded response time based on the 0.1 s forced decision time will be explained in Supplement A-1. In Fig. 2 in the manuscript, the forced decision time of 0.1 s was not described for readability purposes. The calculation of the total decision time presented in the manuscript shows the results of calculations based on a forced decision time of 0.1 s.

**A-1. The forced decision times for calculating the total decision time**

We explained the handling of the forced decision times for calculating the total decision time.

The illustrated model of the total decision time and recorded response time with a forced decision time *t* (second) is shown in Fig. A.

In both experiments, the shortest recorded response time is considered a spam response. We defined the shortest recorded response time in the experimental results for each forced decision time group as the sum of the forced decision time and nondecision time (Fig. A(i)). Based on this definition and the assumption that the nondecision time was constant, the nondecision time for each response was calculated.

For Experiment 2, there were two stimuli: the stimulus of presenting the new task and that of thinking to click the answer button. In other words, the time used for stimulus encoding exists immediately after the task has been presented (stimulus encoding (a) in Figure A) and immediately after deciding the answer in one’s mind and thinking about answering it (stimulus encoding (b) in Figure A). In the current study, however, the time used for stimulus encoding was considered to be zero because it was extremely short. Because the nondecision time is about 0.2 s (see Supplement A-2), stimulus encoding (b) is shorter than 0.2 s. The length of stimulus encoding (a) may be the same as that of stimulus encoding (b), or it may be shorter than stimulus encoding (b), here taking into account that the operator’s attention is directed at the screen by the fixation point. Considering that the purpose of the discussion based on the total decision time was not to grasp the difference based on the unit of 0.1 s, we judged that it was not a problem to interpret stimulus encoding (a) as almost zero.

Based on these assumptions, the same formulation (Eq. 1) was used for calculating the total decision time.

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Fig. A: Illustratedmodel of the decision time and recorded response time: (left) Experiment 1 and (right) Experiment 2.

**A-2. The shortest recorded response time as the spam response time**

Table A shows a list of the shortest recorded response times in the behavioral experiments and the nondecision times calculated based on these values. From the results, it is clear that there is very little possibility of finding clear individual differences in the nondecision time, and it is almost constant regardless of the forced decision time. This suggests that our assumption that the shortest response time in the experimental environment for each forced decision time is the sum of the forced decision time and the nondecision time (Figure 2(i)) and that the nondecision time being almost constant in general was reasonable.

In Experiment 2, the value of nondecision time was large only when t = 6. This is because the forced decision time was long and the cognitive workload high in this condition where participants who gave spam responses dropped out, suggesting the possibility that there were there were no spam responses. We have to note that the experimental group with a forced decision time of 0.1 s, which is the minimum value for our experimental system, is considered to be a group without a forced decision time. We called the group “without intervention.”

Table A： Results of the nondecision time of each experiment. **Remark:** *The nondecision time was almost constant, and our assumption that the shortest response time for each forced decision time is the sum of the forced decision time and the nondecision time was reasonable.*

|  |  |  |
| --- | --- | --- |
| Forced decision time | The shortest recorded response time | Nondecision time |
|  | | |
| Experiment 1 | | |
| w/o (0.1) | 0.28 | 0.18 |
|  | | |
| Experiment 2 | | |
| w/o (0.1) | 0.29 | 0.19 |
| 1 | 1.20 | 0.20 |
| 2 | 2.18 | 0.18 |
| 3 | 3.17 | 0.17 |
| 4 | 4.18 | 0.18 |
| 5 | 5.22 | 0.22 |
| 6 | 6.31 | 0.31 |

**Supplement B**

**B-1. The correct answer rate for each second of the total decision time (Experiment 1)**

Table B-1: Results of the one-sample t-test for the null hypothesis that the correct answer rate for all the total decision times (0.671) and the correct answer rate for each second of the total decision times were equal (Experiment 1).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Total decision time (seconds) | **0–1** | **1–2** | **2–3** | **3–4** | **4–5** | **5–6** | **6–7** |
| correct answer rate  P-value  Effect size | 0.54 ± (0.14)  **1.3e–12**  -0.94 | 0.70 ± (0.054)  **4.5e–07**  0.54 | 0.69 ± (0.072)  0.005  0.28 | 0.66 ± (0.11)  0.53  -0.064 | 0.68 ± (0.13)  0.32  0.1 | 0.65 ± (0.23)  0.37  -0.09 | 0.63 ± (0.27)  0.16  -0.14 |
| Total decision time (seconds) | **7–8** | **8–9** | **9–10** | **10–11** | **11–12** | **12–13** | **13–14** | **14–15** |
| correct answer rate  P-value  Effect size | 0.65 ± (0.31)  0.45  -0.077 | 0.64 ± (0.35)  0.34  -0.099 | 0.64 ± (0.38)  0.53  -0.07 | 0.7 ± (0.38)  0.6  0.065 | 0.76 ± (0.37)  0.053  0.24 | 0.7 ± (0.43)  0.59  0.072 | 0.66 ± (0.44)  0.84  -0.029 | 0.58 ± (0.46)  0.25  -0.2 |

**B-2. Total decision time and correct answer rate**

We conducted a one-sample t-test to determine whether the correct answer rate of each second of the total decision time was different from the average of the correct answer rate of all the total decision times without the intervention (68.50% in Experiment 2) for those total decision times of less than 10 s (Table B-2). In both Experiments 1 and 2, the mean correct answer rate for total decision time between 0 and 1 s was significantly smaller than the mean of the correct answer rate for all total decision times without the intervention. There were no other total decision times that showed a similar trend for all forced decision times.

Table B-2：Total decision time and average correct answer rate for each forced decision time for Experiment 2. (top) average correct answer rate, (middle) p-value of one-sample t-test, (bottom) effect size.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Forced decision time | Total Decision time (second) | | | | |
| **0-1** | **1-2** | **2-3** | **3-4** | **4-5** |
| **0** | 0.566 ± (0.192)  **p = 2.8e-07**  -0.623 | 0.721 ± (0.0882)  **p = 8.68e-05**  0.409 | 0.706 ± (0.145)  p = 0.149  0.146 | 0.723 ± (0.246)  p = 0.123  0.155 | 0.679 ± (0.342)  p = 0.861  0.0185 |
| **1** | ― | 0.756 ± (0.135)  **p = 2.38e-06**  0.525 | 0.690 ± (0.114)  p = 0.642  0.0466 | 0.738 ± (0.169)  p = 0.00214  0.315 | 0.705 ± (0.246)  p = 0.425  0.0805 |
| **2** | ― | ― | 0.709 ± (0.216)  p = 0.29  0.112 | 0.725 ± (0.126)  p = 0.00232  0.313 | 0.704 ± (0.208)  p = 0.355  0.0929 |
| **3** | ― | ― | ― | 0.748 ± (0.172)  p = 0.000917  0.366 | 0.686 ± (0.123)  p = 0.961  0.00487 |
| **4** | ― | ― | ― | ― | 0.720 ± (0.162)  p = 0.0531  0.213 |
| **5** | ― | ― | ― | ― | ― |
| **6** | ― | ― | ― | ― | ― |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Forced decision time | Total Decision time (second) | | | | |
| **5-6** | **6-7** | **7-8** | **8-9** | **9-10** |
| **0** | 0.635 ± (0.398)  p = 0.267  -0.125 | 0.682 ± (0.403)  p = 0.952  -0.00716 | 0.798 ± (0.376)  p = 0.0269  0.301 | 0.668 ± (0.441)  p = 0.802  -0.0375 | 0.586 ± (0.477)  p = 0.227  -0.208 |
| **1** | 0.731 ± (0.304)  p = 0.16  0.15 | 0.638 ± (0.376)  p = 0.253  -0.125 | 0.622 ± (0.429)  p = 0.226  -0.147 | 0.693 ± (0.406)  p = 0.88  0.0201 | 0.686 ± (0.426)  p = 0.989  0.00185 |
| **2** | 0.691 ± (0.294)  p = 0.839  0.021 | 0.761 ± (0.34)  p = 0.0461  0.222 | 0.709 ± (0.401)  p = 0.766  0.0419 | 0.703 ± (0.423)  p = 0.766  0.0419 | 0.67 ± (0.428)  p = 0.806  -0.0346 |
| **3** | 0.671 ± (0.226)  p = 0.522  -0.0642 | 0.698 ± (0.3)  p = 0.66  0.0448 | 0.756 ± (0.327)  p = 0.0515  0.217 | 0.682 ± (0.371)  p = 0.941  0.00835 | 0.712 ± (0.407)  p = 0.595  0.0667 |
| **4** | 0.713 ± (0.107)  p = 0.0101  0.262 | 0.712 ± (0.181)  p = 0.136  0.15 | 0.654 ± (0.315)  p = 0.338  -0.0969 | 0.647 ± (0.366)  p = 0.313  0.105 | 0.673 ± (0.354)  p = 0.753  0.0351 |
| **5** | 0.767 ± (0.16)  **p = 4.18e–06**  0.514 | 0.718 ± (0.12)  p = 0.00667  0.277 | 0.731 ± (0.211)  p = 0.033  0.216 | 0.690 ± (0.321)  p = 0.891  0.0145 | 0.682 ± (0.393)  p = 0.943  -0.00787 |
| **6** | ― | 0.771 ± (0.168)  **p = 1.49e–05**  0.513 | 0.708 ± (0.132)  p = 0.0798  0.177 | 0.676 ± (0.221)  p = 0.681  -0.0414 | 0.669 ± (0.274)  p = 0.575  -0.0571 |

Supplement C

The participants could drop out at any time; therefore, the number of participants for each answer order was different. Of course, the correct answer rate differed for each order.

We explain in detail how to calculate at each order of the tasks in detail.

For example, when the order of tasks was one, if 100 participants responded to the first task and the correct answer rate about the first tasks by the 100 participants was 0.7, the for the first tasks was 100 × 0.7 = 70. When the order of tasks was two, if 99 participants responded to the second task (i.e., one participant dropped out before responding to the second task) and the correct answer rate about the first tasks by the 99 participants was 0.68, the for the second tasks was 99 × 0.68 = 67.32. We repeated this process from 1 to 100 for the order of the tasks.