

POSTER PRESENTATION 3: PHYSICAL AND MENTAL HEALTH

Development of a web-based memory check tool using jsPsych

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Purpose Currently in Japan, public awareness of dementia is based on the concept that "anyone can develop dementia, and it is something that is familiar to many people, including family members and those close to them" (quoted from the Outline of Dementia Policy Promotion in Japan). As a part of the promotion, we have developed a web-based memory check tool using jsPsych (De Leeuw, 2015), a library released under the MIT license for conducting psychological experiments on a browser. jsPsych can be used for psychological experiments in various environments (smartphones, personal computers, etc.) and can be used for self-assessment of cognitive functions. It has been used for psychological experiments in various environments (smartphones and personal computers). Because it can be run on a browser, subjects do not need to install any special program, and it is thought to be an easier and safer way to check cognitive functions. The purpose of this study is to verify whether this web-based memory check tool can be used by a wide range of age groups and genders. **Method** The flow of the web-based memory check consisted of (1) a questionnaire on subject attributes, (2) an immediate replay task, (3) a choice reaction time task (Nissen & Bullemer, 1987), (4) a delayed replay task, and (5) display of results and recommendation for medical examination. The items (2) and (4) were designed to resemble the contents of a shopping trip in order to better reflect real-life impairment. The task (3) was designed to assess attentional impairment, and was administered for 3 to 5 minutes to allow for a time interval between tasks (2) and (4). The created web-based memory check tool was made available free of charge on March 11, 2021 on "ORANGENET" (<https://check.orangenet.osaka/>, Figure 1), a dementia awareness website for the general public. The results of the questionnaires and tests were stored as anonymous information with Wellness Open Living Lab (WOLL), the operator of "ORANGENET". We examined test results and user demographics (age, gender, educational level). **Results and Discussion** Information on users who used the web-based memory check tool by May 12, 2022 is shown in Table 1. The users were found to be mainly in the 50-70 age range. Users up to the age of 60 years old were mainly those who graduated from vocational schools or universities, while users in the age group of 70 years old and above included those who graduated from junior high school and high school as well. No differences were found regarding the gender of the users. These results suggest that the service may have been accepted by a wide range of age groups, genders, and educational backgrounds.

References

- De Leeuw, J. R. (2015). jsPsych: A JavaScript library for creating behavioral experiments in a Web browser. *Behavior research methods*, 47(1), 1-12.
- Nissen, M. J., & Bullemer, P. (1987). Attentional requirements of learning: Evidence from performance measures. *Cognitive psychology*, 19(1), 1-32.

Keywords: dementia, web-based check, awareness

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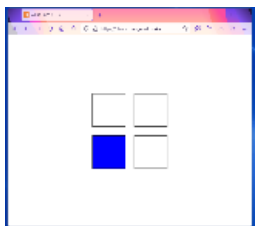
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Acknowledgement: WOLL has loaned us free of charge the server resources to publish the web-based memory check tool and to store the records.



Left: You are instructed to memorize three randomly selected items. You are asked if the items shown in the pictures (text) match the items you have just memorized.

Figure 1. Screen shots.



Right: You are instructed to click or touch as quickly as possible as one of the four white squares turns blue.

Table 1. Demographics of users

		Age					
Factor	Group	up to 34	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89
n		27	30	76	51	50	7
Education level (%)	Junior High School (9y)	0 (0.0)	1 (3.3)	0 (0.0)	0 (0.0)	3 (6.0)	2 (28.6)
	High school (12y)	1 (3.7)	5 (16.7)	21 (27.6)	5 (9.8)	16 (32.0)	2 (28.6)
	Technical college (14y)	1 (3.7)	0 (0.0)	3 (3.9)	0 (0.0)	0 (0.0)	0 (0.0)
	Vocational School (15y)	3 (11.1)	5 (16.7)	14 (18.4)	13 (25.5)	1 (2.0)	1 (14.3)
	University (16y)	12 (44.4)	12 (40.0)	25 (32.9)	15 (29.4)	11 (22.0)	2 (28.6)
	Short term university (17y)	0 (0.0)	3 (10.0)	8 (10.5)	10 (19.6)	18 (36.0)	0 (0.0)
Gender (%)	Graduate School (18y)	10 (37.0)	4 (13.3)	4 (5.3)	8 (15.7)	1 (2.0)	0 (0.0)
	Female	7 (25.9)	18 (60.0)	49 (64.5)	33 (64.7)	21 (42.0)	3 (42.9)
	Male	20 (74.1)	12 (40.0)	27 (35.5)	18 (35.3)	29 (58.0)	4 (57.1)