

S.E. REPOU, K.L. PANAYIOTOU, G. KARAGIANNIS. **The RAPP project: Robotic applications for older-adult cognitive games.** *Gerontechnology* 2016;15(suppl):158s; doi:10.4017/gt.2016.15.s.826.00 **Purpose** The RAPP project (Robotic Applications for Delivering Smart User Empowering Applications), aims to provide an open-source software platform supporting the creation and delivery of robotics applications (RApps) which, in turn, are expected to increase the versatility and utility of robots. The offered solutions aim to enable older people to remain socially active and increase their independence and autonomy while at the same time relieve caregivers from tedious tasks and provide necessary tools to the medical community for a better assessment of the functional and cognitive status of the patient^{1,2}. In this paper, we are specifically focusing at the cognitive game RApp, an application that aims to stimulate and exercise the cognitive abilities of attention and memory using simple and enjoyable methods (Figure 1). **Method** This application was initially tested by the developers and the psychologists of the project and subsequently by a pilot group of technology illiterate older adults at the community center for seniors of New Moudania (Greece). The users (n=8) were called to interact with NAO³ and use the offered exercises of the RApp which varied from arithmetic calculations to awareness tests and Q&A questions following short narratives. The exercises have different grades of difficulty and users could start from the easiest level to move to the more difficult ones according to their performance. The core of the cognitive game RApp prototype uses a list of files in which stories, questions and valid answers exist. The output is presented as a success rate of how many correct answers the user has given. The answers are stored on the cloud and can be reached and evaluated by the user or persons with appropriate authorisation (caregivers, therapists). The cognitive games RApp is currently under testing by larger groups and groups with Mild Cognitive Impairment (MCI) users. **Results & Discussion** The interviews that followed the pilot tests revealed that older adults found the use of the cognitive games RApp via the NAO robot simple and easy. The fact that there were no demands of prior 'technological' knowledge was appreciated and warmly welcomed. The gaming procedure of gradual gaming levels from the easiest to the more complicated ones was positively evaluated as intriguing and fun. The variety of cognitive exercises and the stages of difficulty functioned as a motivation to play and train. Cognitive training was actually evaluated high by the users (8/10) who asked for more meetings and more exercises. Concerning the usability of RApp, seven out of eight users commented that they would rather use RApps and robots instead of computers (it is hard to learn how to use them) while one stated that s/he would use both robots and computers (if possible) to play cognitive games. There was a minor resentment with the confirmation questions of the robot during the cognitive games as they were perceived to be too many and tedious. The early results were evaluated and led to alterations of the application that is currently tested with larger groups and MCI users.

References

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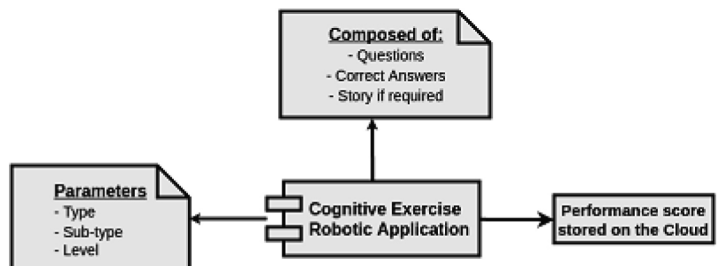


Figure 1. The cognitive game component of the RApp: Input / Output parameters