

PC-BASED AUTOMATED APPARATUS TO TEST COGNITIVE ABILITIES OF MACAQUES

A. Izumi¹, J. Tsuchida¹, K. Nakamura^{1,2}

¹*National Institute of Neuroscience, National Center of Neurology and Psychiatry, Kodaira, Tokyo, Japan*

²*Primate Research Institute, Kyoto University, Inuyama, Aichi, Japan*

Presenter's Email: akizumi@ncnp.go.jp

Although tests of primate cognitive abilities have traditionally been conducted in particular testing rooms, several merits seems to be provided if a test can be done in the subject monkeys' home cages. Home-cage tests don't require habituation of the subject monkeys to novel laboratory environment, and the monkeys can perform the tasks simultaneously only if the experimenter prepares multiple sets of apparatus. On the other hand, several difficulties accompanies to such a home-cage test mainly because of the severe environment of cage rooms (e.g., high humidity after cleaning, destruction by the subject and other monkeys). To overcome the difficulty, a new automated apparatus for home-cage tests was developed. The apparatus consisted of a touch-sensitive display, an automatic pellet dispenser, and an embedded PC (controller). These components were installed in a water-proof box which was attached to individual cages of Japanese macaques. The apparatus worked well: the subject monkeys acquired the task quickly, continued to perform the task for several hours, and usually performed more than 1000 trials a day. The test was discussed in terms of efficient data collection and potential contributions to environmental enrichment. This study complied with the guidelines approved by the ethics committee for primate research in National Center of Neurology and Psychiatry.

Keywords: cognition, operant conditioning, home cage, Japanese macaque