

# **How are interaction between human and an autonomous agent affected by embodiments and voice?: Investigation with age groups comparison.**

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**Abstract:** Although many information systems are employing autonomous agents for the purpose of user-friendly interface, cognitive mechanisms of their effects are not clear yet. In this study, we compared three types of UI, an embodied agent system equipped with a direct anthropomorphization robot, an only voice agent, and without agent system condition, of a microwave oven. Thirty-six older (65 years or above) and 36 younger adults (undergraduate students) participated in the usability testing experiment with one of the three agent conditions. Analysis of interaction between a participant and the oven, through participants' utterance and the personal-space data, showed large differences between two age groups; younger adults entertained the interaction both the voice and the embodiment agent conditions, while older adults evaluated higher only with the embodiment agent condition. Differences in mental models of older- and younger adults, and reasons of those aging effects will be discussed.