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Interactive robots promote children's prosocial behavior

Children behave well in front of a social robot

Abstract

As robots become more integrated into children’ s lives, understanding how children perceive and interact with robots is vital for applying such technologies in early childhood education. This study examined whether 5-year-olds exhibit prosocial behavior in the presence of a robot, and whether prior interaction with the robot influences their behavior. In the experiment, after a session with a robot, 5-year-olds were given stickers and asked to divide them between themselves and another person. We found that children who interacted with a social robot distributed more stickers in the presence of that robot, demonstrating more prosocial behavior. Furthermore, children were more likely to perceive the interactive social robot as having a mind, compared to non-interactive robots. These findings will contribute to the design of social robots as learning companions that support children’ s development, providing valuable insights into early childhood education.

Children and Robots

- Since robots are becoming more involved in children's lives, it is crucial to determine how children perceive robots.

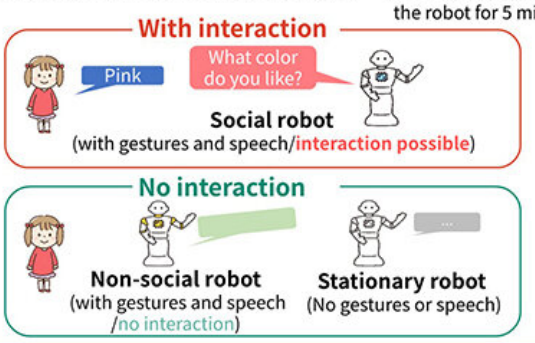
Existing research	5-year-old children behave well in front of observers
Focus of this study	What if the robot is the observer?

Study 1: Children’s behavior in front of the robot

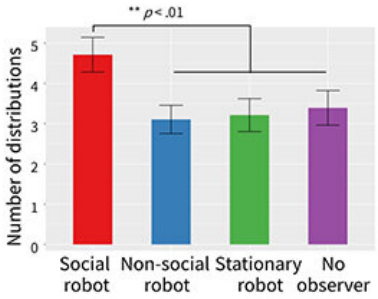
- Testing whether 5-year-olds exhibit prosocial behavior in front of a robot

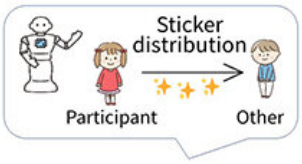
(1) Differences in robot functions

- Participants: 112 5-year-olds
- The child is face to face with the robot for 5 minutes



(2) Distribution task





- Children are given 10 stickers
- In front of the robot, children distribute the stickers between themselves and others

- Children distributed more stickers in front of social robots

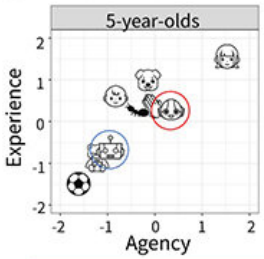
Study 2: Children’s impressions of robots

- 5-year-olds’ impressions of the robot’s **perception**, **competence**, and **mind**

- Children strongly attributed a mind to social robots

Study 3: Perceiving the robot’s mind

- Mind perception across various targets, including robots



- Children rated mind from two dimensions : Agency and Experience
  - Agency: planning and communicating thoughts, etc.
  - Experience: feeling pain or fatigue, etc.

- Children perceived the robot’s mind differently from objects (ball, stuffed toy) and human adults

References

[1] Y. Okumura, T. Hattori, S. Fujita, T. Kobayashi, “A robot is watching me!: Five-year-old children care about their reputation after interaction with a social robot,” *Child Development,* Vol. 94, pp. 865-873, 2023.

Contact

Yuko Okumura, Child Development Research Group, Innovative Communication Laboratory