

Children talking with "RoBoHoN":

Interaction between preschool children and an AI robot.

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Introduction

In Japan, the use of interactional AI devices and ICT media is becoming widespread in daily life and appears to be having an impact on the environment surrounding children. Our study investigated the characteristics of communication between a preschool children and a humanoid AI robot (the "RoBoHoN").

What is "RoBoHoN"?

RoBoHoN is a small mobile humanoid robot device manufactured by Sharp Corporation (2016).

- ✓ About 19.5 cm tall and weighed 390g.
- ✓ He has cloud-based artificial intelligence (AI), and he can talk, answer various information to a question, and act by voice commanding.
- ✓ He can walk on two legs. He can make gestures and dance to the conversation.



Purpose of this study

The purpose of this study was to examine the content of conversations and the way of speaking when kindergarten children ask questions and talk about themselves to the RoBoHoN.

Method

The experiment was conducted in February 2019. Participating children were 28 children aged 5 and 6 in private kindergartens.

Procedure

The experiment was conducted in a classroom. One group consisted of 2 to 4 children. Children talked to the RoBoHoN with instructions by researcher. The relation between the RoBoHoN and the children were recorded by the video. The experiment took 5 to 10 min per group.

Session 1: Children asked a question to the RoBoHoN (e.g. "What food do you like?", "What's your favorite game?").

Session 2: Talking to the RoBoHoN: Children were asked to explain today's activity to the RoBoHoN ("Let's talk to the RoBoHoN what you played at the kindergarten today."). The RoBoHoN was programmed to respond to the children's speech. (e.g. "Yeah, yeah.", "That game looks fun!")

Results and Discussion

As a result of observing the interaction between the child and the RoBoHoN in each session, the following were mainly clarified.

Session 1

- (1) There are many experimental actions to test the reaction of RoBoHoN. Gradually, children began to adjust their talks to the response of the RoBoHoN.

Episode1: When the RoBoHoN doesn't answer (unrecognized) children's question:

Child A: "Let's talk while eyes of RoBoHoN are still yellow."

Child B: "When I'm talking to RoBoHoN, please keep quiet!"

Children seem to be trying to do how the RoBoHoN can recognize their words. Gradually, it became possible to see the robot adjusting its

speech to the RoBoHoN. They look to be satisfied when the RoBoHoN reacts to their words.

- (2) Children can talk according to the reaction of RoBoHoN. Children recognize RoBoHoN as being different from humans, but they also regard them as being able to communicate, being willing, and being able to play together.

Episode2:

Child C: "What is your favorite game?"

RoBoHoN: "I love puzzles."

Child C: "Oh!? Puzzles!"

RoBoHoN: "It's difficult, but I'll be happy when it's completed."

Child C: "Yeah!"



- (3) While the children had a sense of reverence for the RoBoHoN, they also thought it seemed more childish than them.

As a feature of the way of speaking, polite (affectedly) speech were seen. On the other hand, they said the RoBoHoN "cute". They may see the RoBoHoN like an infant or a pet?

Session 2

Some children were a little nervous because they had to tell their thoughts, but most were able to tell the RoBoHoN what they played today.

They seem to recognize that RoBoHoN listen to them. Few children spoke communicatively about the robots, such as "I played soccer." and many only said what they had done, such as "Soccer!" This seems a feature of the communication with the RoBoHoN, and it also seems to reflect the developmental features of early childhood that they are difficult to talk about their own experience.



Today, I played ...

Conclusion

One of the features of children's communication with RoBoHoN is that they gradually adjust their speech to the RoBoHoN.

It is thought that children are aware of the fact that they communicate with different beings from themselves, and that they are trying to communicate with others in accordance with them. This may be a part of the development of literacy toward media.



What's the difference?

Though this investigation was short time, the child tried the conversation experimentally in proportion to the reaction of the RoBoHoN.

This suggests that long-term, continuous implementation of this experiment may lead to closer communication to AI devices.

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