A Social Robot Facilitator in Computational Thinking (CT) Group Discussions in Teacher Training

Dr. Ayelet Weizman, Kibbutzim College of Education, Technology & the Arts
PI: **Prof. Goren Gordon**, Head of Curiosity Lab, Tel-Aviv University

Abstract

The effect of a social robot as a group facilitator in a Computational Thinking (CT) course in M.Ed. program for teachers was investigated.

18 participants were divided to experimental group facilitated by a robot, and a control group facilitated by the instructor. The goal was to compare group discussions about computational thinking lead by a robot with those lead by a human instructor.

Mixed methods' analysis findings show some interesting implications for teacher training with social robots.

Goal

Compare a discussion about Computational Thinking lead by a robot with a discussion lead by a human instructor.

Objectives

1. Learn about the effectiveness of a robot-facilitated CT group discussion
2. Study the effect of a social robot as a Modelling Facilitator in CT courses

Participants

18 M.Ed. in Educational Technology Students, with no background in computer-science, participating in a CT course

Methodologies

Mixed methods were used, including the following tools:

1. Attitudes toward the robot questionnaires (pre and post instruction)
2. Group attitudes' Questionnaires
3. Videotaped group discussions

Preliminary Results (Only Qualitative)

- There were meaningful discussions in the experimental groups, as well as in the control group
- There were differences between the dynamics of the discussion in experimental groups 1 and 2
- All the participants in the experimental group reported positively to the experience with a robot facilitation
- There were difficulties with the robot operation, which were noticed by the participants

Experimental Setup

Experimental Group 1

Experimental Group 2

Control Group 1

Control Group 2

Contributions to the Science of Learning

- Social robots as facilitators in Teacher Training
- An innovative method of facilitation in CT learning for participants with no background in computer science
- A possible synergy between CT learning and Robot facilitated group discussions

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