

## Freeplay Sandbox – Baseline Acquisition



Figure 1: The free-play sandbox environment

### Conditions

- Condition A: one pair of children freely play together on the sandtray.
- Condition B: one child play together with the robot, the robot does not exhibit any social behaviour.

### Demographics

- Condition A: 40 pairs of children (ie, 80 children)
- Condition B: 40 children

2 age groups, balanced across conditions: 4 y.o. (nursery) and 6 to 7 y.o. (Y1/Y2)

Normally developing children, from local primary schools and nurseries.

## Experimental Setup

On large touchscreen, mounted on a horizontal frame (*sandtray*); both children (condition A, Figure 2) or the child and the robot (condition B, Figure 3) are facing each other.

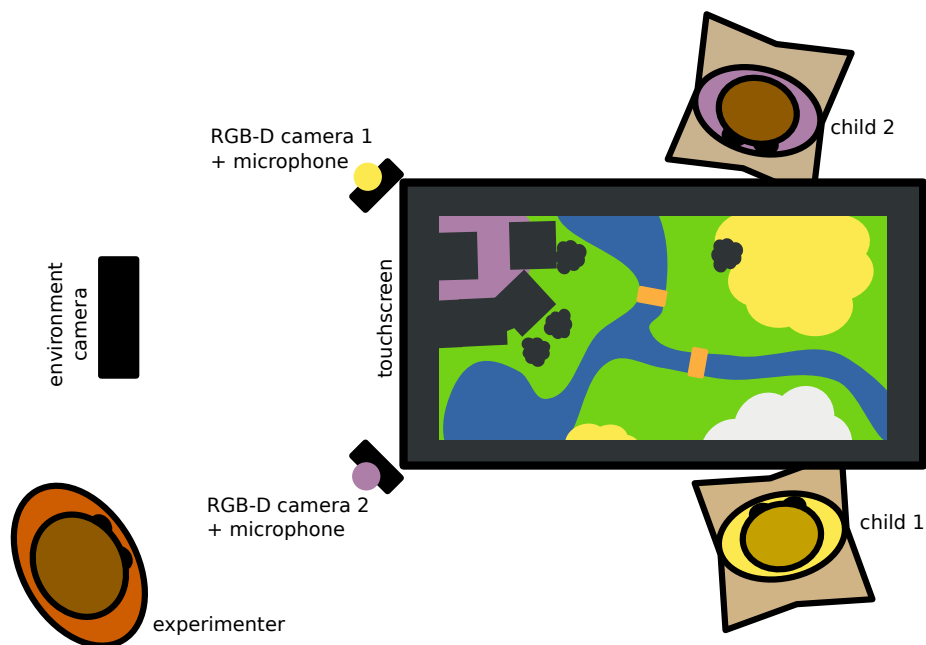


Figure 2: Experimental setup, child-child condition

The experimenter stays in the room, visible from the child. When requested by the nursery or school, another childminder (nursery/school staff) can be present in the room. She/he is however asked not to step in during the experiment.

The interaction is recorded by 3 cameras (on ‘environment’ camera filming the whole scene; two RGB-D cameras, focused on each of the children faces).

Audio is recorded as well with 2 microphones integrated to the RGB-D cameras.

One computer (integrated with the touchscreen) manages the game and the synchronous recording of the cameras and microphones.

## Protocol

1. welcome (5 min):
  - place children on cushions
  - give them the yellow/purple sport bibs

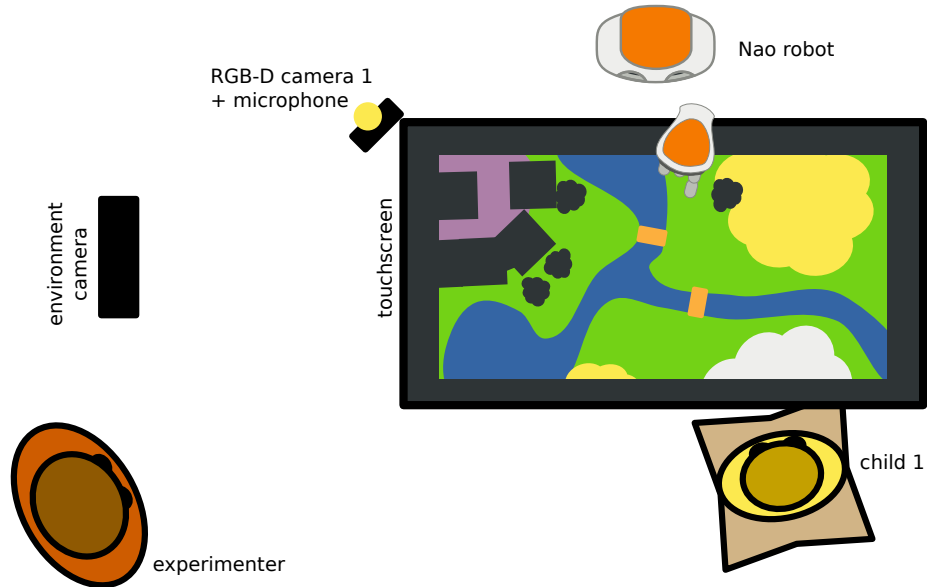


Figure 3: Experimental setup, child-robot condition

- make sure hairs are tied (to help with face tracking)
  - ask names (but do not write them down)
  - fill up questionnaire on the tablet – age, gender, familiarity with tablet
  - **remind the children that they can withdraw at anytime**
  - **explain the purpose of the study: showing robots how children play**
  - in condition B, present briefly the robot – saying it is not a very sociable robot, and it might play alone.
2. visual focus task (~30 seconds)
  3. tutorial (1-2 min): explain how to interact with the game, ensure the children are confident with the manipulation/drawing
  4. main freeplay task (~20 min):
    - start the recording
    - example prompt: “I let you play now! You can build a zoo, or tell stories, as you want”
    - let children play
    - encourage children to keep playing at least 5 min
    - once they wish to stop, stop recording
  5. debriefing (5 min):
    - answer possible questions from the children
    - give stickers

Total duration: ~30 minutes per group.