

Week 8

Human-Robot Interaction

Practical Session





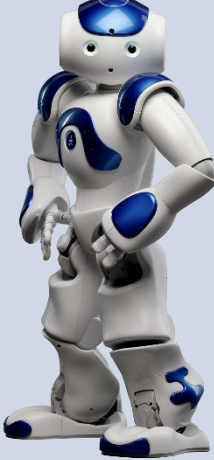





**UWE
Bristol**

University
of the
West of
England

Experiment Design

Implementation

Evaluation

Week	1	2	3	4	5	6	7	8	9	10	11	12
Activity	 Brainstorming ideas	 NAO Tutorial	 Mini User Study	 Study Plan	 Robot Implementation			 Study Documents	 Pilot Study	 User Study	 Statistical Evaluation	 Report Writing Guidelines

Study Preparation

- **Participant briefing**
 - Ethical approval check list
 - Purpose of study
 - Task instructions
 - Information data collection
- **Pre-study questionnaires**
 - Informed consent
 - Demographic data
 - Pre-study qualitative data
- **Study task**
 - Participant task with robot
 - Experimenter roles
 - Questionnaires
 - Objective measurements
- **Debriefing**
 - Post study questionnaires
 - Post study interview
 - Answering any final questions

Participant Briefing

- Purpose of study
 - Inform participants what they will experience in the study, but do not give away what the topic of your study is
 - Example: “In this study you will collaborate with a robot on a construction task”.
- Task instructions
 - Give the participants instructions about the task they are about to perform with the robot
 - The instructions can include information about how to interact with the robot (e.g. whether the robot is able to understand speech)
- Information about data collection
 - The participants need to be informed about the kind of data that you are collecting in the study (e.g. video, audio data, questionnaires)

Ethics Checklist and Informed Consent

- Please have a look at the supplied examples
- Fill out the ethics checklist
- Write your own informed consent sheet based on the example
- Informed consent
 - Most important pre-study document
 - Informs the participants about their rights and about the study

Pre-study Documents

- Demographic data
 - Data like age, gender, etc.
 - Only collect the minimum data that is relevant for your study
- Pre-study qualitative data
 - Any questionnaires that you want to give to the participants before the study
 - Example: Personality questionnaire, self-assessment questionnaires

Study Task

- Participant task with robot
 - An exact description of the task the participants are executing with the robot
 - Think about the timing of the tasks
 - Think about when the task is complete (e.g. participants have to build 5 objects with the robot, but if they need longer than 10 minutes, the task will be interrupted by the experimenter)
- Experimenter roles
 - The group should split up during the study task to take over different roles
 - Experiment leader: Greets participants and leads them through the whole experiment
 - Note taker: Takes notes of the interaction, e.g. answers to interview questions.
 - Robot technician: Takes care of robot control during experiment
 - Data recording technician: Takes care of data recording during experiment

Measurements

- **Subjective measurements**

- Questionnaires
- Interviews
- Try to find standardised questionnaires on the internet

- **Objective measurements**

- Task success
- Task completion time
- System turns (how often the robot speaks)
- User turns

Example measurements

- Subjective
 - Perceived intelligence scale of Godspeed questionnaire series
 - System Usability Scale
- Objective
 - Time taken to build the LEGO set
 - Task success: How many LEGO sets have been built? Have they been built correctly?

Debriefing

- Post study questionnaires
 - Questionnaires asking for the overall experience with the robot
 - Can be used to compare user experience before and after the study
- Post study interview
 - Can be useful to ask open questions to the participants to get more qualitative data
 - If you want to do an interview, prepare useful questions in advance
 - Always ask general questions first and then go into specific questions (e.g. first: "How did you like to interaction with the robot?" then: "Did you notice that the robot had a specific way of asking you questions?"")

Assignment

- The goal of this assignment is to complete your study preparation and submit your study documents to the tutor team
- **Assignment will not be marked, it is only a check that all documents are correct.**
- Please prepare a PDF document that contains the following parts:
 - Informed consent form
 - Study information sheet
 - Completed Ethical Review Form
 - Participant briefing notes (purpose of study, task instructions, information on data collection)
 - Questionnaires you will use for the study
 - Information about any other measurements you will take
 - Roles of group members during the study
 - Debriefing notes
- Please use a 11pt sans serif font
- PDF File name: user-study-description-group-*<your group number>*.pdf
- Upload the PDF to Blackboard