

Assignment 2 report Social Robotics:

Work done by the group:

Fabrizio Francesco Leopardi (4816319)

- Video “acting” and editing: cuts and order of the video clips
- Application design of components: Greetings2, Main interaction, Was Joking, Basic Interaction, Clever movement.
- Collected answers to the questionnaire and checked statistical analysis
- Report

Alessio Mura (4861320)

- Video “recording” and editing: cuts and order of the video clips
- Questionnaire design
- Application design of components: Main interaction, Lecture
- Collected answers to the questionnaire and checked statistical analysis

Miriam Anna Ruggero (4881702)

- Video editing: general idea of the video and audio cleaning
- Application design of component: Greetings2, Basic Interaction
- From the data gathered by the other 3 in the group performed statistical analysis

Ivan Terrile (4851947)

- Video editing: subtitles idea and implementation
- Application design of the components: Main interaction, Clever movement, Bye!
- Collected answers to the questionnaire and checked statistical analysis

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### **Application description:**

The application has been divided in blocks to maximize modularity and readability. In order to see Pepper in simulation we used: Edit > Preferences > Virtual Robot > Pepper Y20 (V10).

In the application that we designed Pepper is going to be the professor of social robotics 2.0. We thought that if the user saw Pepper as a university professor the

perceived intelligence of the robot would be as high as possible: scientists, researchers and professors are typically reputed in society as very intelligent. Pepper is able to explain, make jokes and show images at its tablet.

The ability to explain as well as showing images should be correlated with the perception of linguistical intelligence and competence in the subject.

The ability to joke should enhance its perceived wit, in particular its interpersonal intelligence.

When asking questions to the students Pepper is able to handle both a “yes” and a “no” as an answer for each single question. This may generate different interactions increasing the overall complexity of the system. When making examples of social robots Pepper calls Nao “my little brother” so as to increase its perceived aliveness. Notice that the use of the tablet is optimized for the real robot.

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Results:

153 answers to the questionnaire were obtained.

Results and computations from statistical analysis can be found in the excel file.

Statistical analysis summary:

Statistical analysis was performed on the obtained data.

First Kolmogorov-Smirnov test showed that the sum of data (with no reversed items) for each single participant is assumed to be normal, as expected.

The chance of error when rejecting such a statement is assumed to be too high (p value): 47.39%.

Cronbach’s alpha value obtained was approximately 0.905, therefore the answers seemed to be consistent.

A statistical two-tailed one sample T-test (with significance level 0.05) was performed showing also that the average score of each single participant is different from the average score we would have obtained if participants had answered in a completely neutral or random way.

In the latter cases the average would have been $63 = 3 \cdot 21$.

The average score obtained was approximately 72.8 which is higher than 63.

A Right-tailed one sample T-Test (with significance level 0.05) confirmed this fact:

The population’s average is considered to be greater than the expected average 63.