

Working with Social Robots. An Exploratory Study through the Lenses of the Technology Acceptance Model (TAM)

Jean-Christophe Giger

Universidade do Algarve, Faculdade de Ciências Humanas e
Sociais; CIEO
(jhgiger@ualg.pt)

Nuno Piçarra

(nuno.psicologia@outlook.pt)

Grzegorz Pochwatko

Virtual Reality and Psychophysiology Lab, Institute of
Psychology, Polish Academy of Sciences
(grzegorz.pochwatko@psych.pan.pl)

ABSTRACT

Recent years saw the robots' role at work progressing from tool to partner (Warta et al, 2016). These changes in the work place require a behavioral outlook. In the present study, 90 participants where show a video of three social robots (robots designed to interact and collaborate with people, to engage them at an interpersonal and socio-affective level [Breazeal, 2008]). These robots represented three different design approaches, mechanical, humanoid and android, with participants randomly assigned to one of the three conditions. After listening to a short explanation about the social robot's features and function and watching a short film, they were asked to complete the following rating scales: usefulness, ease of use, attitude towards working with social robots and intention to work with social robots in the near future. The first analysis studied the effects of different robot design on the perception of the robot's usefulness, ease of use and intention to work using a multiple analysis of variance. The second analysis studied the usefulness of the TAM in understanding the intention to work with social robots conducting a hierarchical multiple regression analysis. Results show that, the more the robot design is human-like the less it is perceived as useful and easy to use. Robot design accounted for 6% of the explained variance of the intention to work with a social robot. The inclusion of the variables from TAM increased the amount of variance explained to 58%, thus underlining the importance of socio-cognitive factors in human-robot interactions.

Keywords: Social Robots, Technology Acceptance Model, Usefulness, Ease of Use, Intention to Work.