Linguistic nudges with positive influence are defined as information that indirectly steers a person to adopt a habit by presenting positive side of the consequences of this habit. Nudges with negative influence focus on information about the negative side of a habit’s outcomes, pushing a person to not adopt this habit. Thus, a nudge could improve your social welfare but it can also work against your interests. We presented the methodology of data collection which aims to investigate the potential of influence by the robot, the smart-speaker, and the human agents and nudges with positive and negative influences.

For the first, third, and fifth questions, the nudges with positive information seem to influence more participants and to a more significant positive degree than the nudge with negative influence. The nudge with negative influence affects more people for the question of the tote-bags use.

Participants were mainly affected by the nudges with positive influence. The robot agent convinced more participants for the first, fourth, and fifth questions than other agents. The human agent had impact on more participants for questions of tote-bags and meat consumption. The smart-speaker agent influenced more participants for the questions of the use of electric cars’ batteries, that are hard to recycle. On a scale between 1 and 5, how willing would you be to buy an electric car on a scale from 1 to 5?

The table shows standard deviation values of the delta for three groups of agents regardless the type of nudge. The human agent influenced more participants for the first, fourth, and fifth questions than other agents. The robot agent convinced more participants in the second question and the smart-speaker agent in the third question.

The robot Pepper affected more participants than other agents for the questions of the use of cleaning products and meat consumption (positive influence). The human agent had impact on more participants for questions of tote-bags and meat consumption (positive influence) and of self-made cleaning products and meat consumption (negative influence).

The smart-speaker influenced more participants on questions about self-made cleaning-products (positive influence) and the use of electric cars (positive & negative influence).

We proved that participants reacted differently to conversational agents and the polarity of nudges.

1. A machine agent can influence participants to the same degree as a human agent.
2. Participants were mainly affected by the nudges with positive influence.
3. Participants were willing to spend more money than time on ecological problems.
4. The group with negative influence was ready to spend more time on ecological problems than the group with positive influence.