Safety Blanket of Humanity

Thinking of Unfamiliar Humans or Robots Increases Conformity to Humans

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ABSTRACT

As robots become prevalent, merely thinking of their existence may affect how people behave. When interacting with a robot, people conformed to the robot's answers more than to their own initial response [1]. In this study, we examined how robot affect conformity to other humans. We primed participants to think of different experiences: Humans (an experience with a human stranger), Robots (an experience with a robot), or Neutral (daily life). We then measured if participants conformed to other humans in survey answers. Results indicated that people conformed more when thinking of Humans or Robots than of Neutral events. This implies that robots have a similar effect on human conformity to other humans as human strangers do.

CCS CONCEPTS

Human-centered computing: human-computer interaction: empirical studies in HCI

KEYWORDS

Conformity, human-robot interaction

1 Introduction

Robots are becoming increasingly prevalent in today's day and age (e.g., roombas, vending machines, Walmart self-pilot floor cleaners). Viewing groups of robots has been shown to change how people act at a basic psychological level, even increasing their likelihood to categorize themselves as human [2]. How people categorize themselves affects their goals and behaviors to be more like the norm for their group [3]. If thinking of robots causes people to categorize themselves as human, they may conform more to other humans when robots are around. This would have implications for expected human behavior in society in the future.

In human-human interaction, conformity is well-studied. Participants conform, particularly to groups, across a variety of contexts [4, 5]. Conformity increases when people have greater identification or more positive past experience with those to whom they are conforming[6].

Conformity with robots can be harder to induce than conformity to humans [7]. Still, under circumstances in which the robot is considered an expert, is trusted, or the task is ambiguous [8, 9], people have conformed to robots. But the question remains how robots affect conformity to other humans.

In this study, participants were primed to think of humans, robots, or an aspect of the daily life, and we measured how much they conformed to other humans. We hypothesized that thinking of robots would increase human conformity to humans.

2 Methods

We recruited participants from eight business classes at New Mexico State University. Participants ($N = 113$) completed an online 5 to 10 minute survey in Qualtrics. Participants were randomly assigned to between-subjects conditions in which they were asked to "recall and describe, as vividly as possible, two experiences in which you encountered" each different prime: a Human ("someone they had never known before"), Robot, or that were Neutral (i.e., "regular things (neither positive nor negative) you did yesterday"). We attempted to control for novelty of robots by asking participants in the Human condition to write about someone with whom they were not familiar.

Measures included: conformity with other humans (e.g., rating a preference towards a popular movie versus an equally well accredited film festival one; preference towards a book club that everyone else was joining versus a book club that would make them stand out). Participants rated their answers on a bipolar scale from 1 (less conformity) to 7 (greater conformity).

3 Results

Data were analyzed in SPSS version 25. We performed between-subjects ANOVAs on the data, using Sidak to correct for multiple comparisons. Participants showed a marginal difference in conformity across conditions on the movie review measure ($F(2, 133)= 2.576$, $p = .080$; Figure 1). Post hoc tests revealed that participants who were primed to think of robots ($p = .085$), or humans ($p = .035$), showed significantly more conformity than participants who were primed to think of a neutral experience. No significant difference occurred across conditions for the book club measure of conformity ($F(2,113) = .415$. $p= .661$; Figure 2).

We also made a cursory examination of what types of robots people wrote about in the Robot condition. Participants mostly

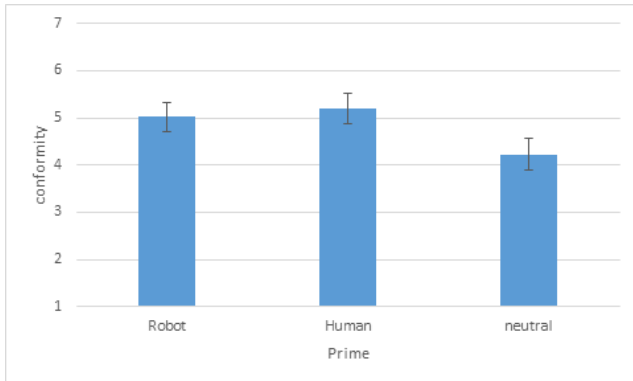wrote about machinelike robots, such as Roombas or in Walmart stores.

Figure 1: Differences in participant conformity across conditions when rating which movie they would rather watch. Error bars represent standard error.
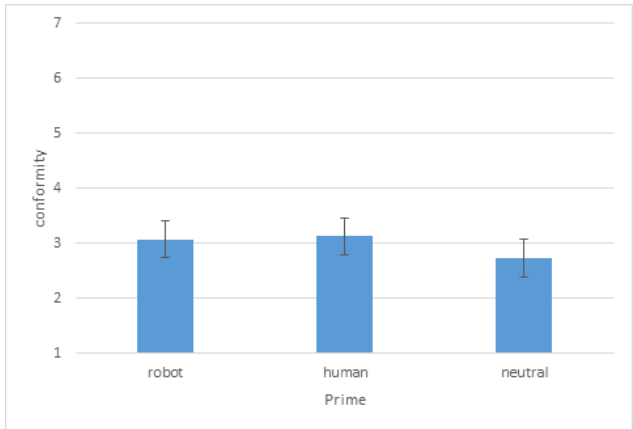

Figure 2: Differences in participant conformity across conditions when rating which book club they would rather attend. Error bars represent standard error.

4 Discussion

In this study, we measured participant conformity to other humans after they were primed to think of humans, robots, or a neutral experience. We found that primes of humans and robots increased conformity to human groups on one measure, but not another. These results partially support our hypothesis that thinking of robots would increase human conformity to human groups. The lack of difference in conformity with thinking of humans versus robots is likely not related to viewing the robots are social actors, because participants typically describe machinelike robots in the Robot condition. Interestingly, this difference occurred even though participants in the human condition often wrote about the first time they met a significant other or best friend. Future researchers should examine differences due to thinking of a familiar human.

The difference in significance across measures suggests that the degree to which people conform while thinking of robots (or humans) is contingent on the context. More typical contexts, like seeing movies, may increase likelihood of conformity.

Conversely, it may be that participants have not joined many book clubs, and therefore joining a book club is not a good measure of conformity. However, future research should examine this effect more closely to see if it replicates with more data.

Although some differences were not statistically significant, this data represents only about half of the data we are collecting. Our future report will include more participants, which will provide us more accurate significance testing.

Our future research will test real-world interactions with robots. Examining actual interaction with robots will give us greater insight on the differences in conformity people display when compared to human-human interaction.

This research will provide a greater understanding of how humans conform in the presence (real or imagined) of robots. This contributes to the psychological and sociological understanding of how humans and robots affect individual expressions of conformity to humans. The results of this study suggest that robots do not increase conformity any more than humans do. These results might change for participants who were more familiar with robots. Future research should examine if people conform more as there is increased regular presence of robots, or these results represent the novelty effect.

Results of this type of research can help marketers determine how to optimize and sell robots. For example, if people thinking about robots or humans increases conformity, advertisements about robots might be most effective when appealing to consumers' desire to follow social norms.

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