

Robot Revolution! Results Report

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Why we did it

Anthropomorphism is the tendency to treat objects as if they have human-like thoughts and feelings. Very little is known about how anthropomorphism develops through childhood. Robots are a very interesting case for anthropomorphism because they often appear to move and make decisions by themselves. This research project was designed to explore 1. The age at which children start to think about a simple robot in the same way as adults and 2. Whether getting familiar with how a robot works changes users' tendency to anthropomorphise a robot.

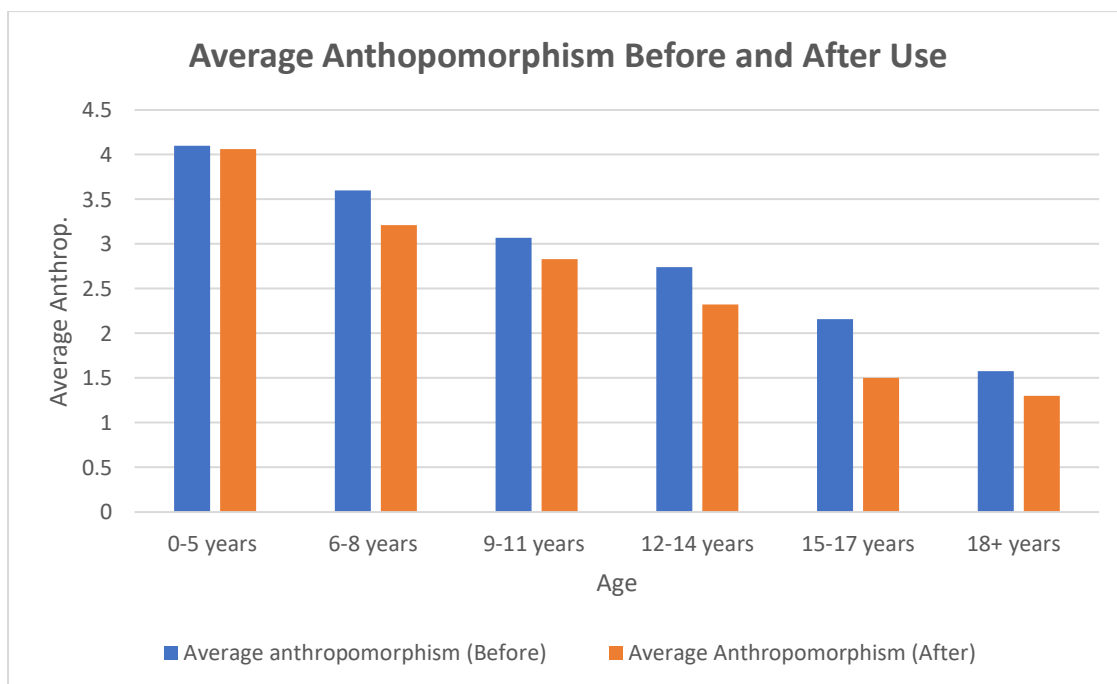
What we did

During the time Robot Revolution was running at We The Curious, we had 1419 visitors provide us with usable responses, of which 798 were children aged between 3- and 17 years, and 621 were adults.

Visitors were introduced to a very simple robot that was chosen because it was basically a box on wheels and had no design features that made it look human such as a face, limbs or a voice. There were then 3 stages to the study:

1. Visitors were asked to respond to a set of questions about how much they agreed or disagreed that the robot had human-like abilities such as feelings and thoughts. From this data we were able to examine the age at which children on average started to think more like adults.
2. Visitors were invited to decorate their version of the robot and use it to compete against other robots in a game of football. To compete, users had to work out how to programme the robots to push a ball through a goal. This stage was introduced to give users some experience of using the robot and working out how to control it.
3. Visitors were then asked to answer the same set of questions about whether the robot had thoughts and feelings. This was to examine what impact using the robot had on people's tendency to anthropomorphise.

What we found



In the graph above, the horizontal axis shows the age of the visitors who took part and the vertical axis shows how much, on average, each age group agreed that the robot had human-like thoughts and feelings. The blue bars show how much they agreed before using the robot and the orange bars how much they agreed after using the robot.

Question 1. The age at which children start to think about a simple robot in the same way as adults

We found that the younger they are, the more children are likely to say that the robot has thoughts and feelings, and that it is not until around 12-14 years of age that children start responding more like adults to these questions. Historically it was believed that this shift happened at around 9 years of age, so this is a novel finding.

Question 2. Whether getting familiar with how a robot works changes users' tendency to anthropomorphise a robot.

Aside from the youngest group, most of the other age groups, including adults, said that the robot had human-like thoughts and feelings significantly less after they had used it than before.

Take home messages

1. Contrary to what little research there is on this, we found the age at which children start thinking about robots more like adults is later than we anticipated, at about 12-14 years. This may reflect the fact that older research has focused on toys that don't move while robots are a category of objects of their own. The fact that robots show independent motion and are so often anthropomorphised in children's tv, films and stories may mean that children initially make sense of them in a slightly different way to other objects.
2. At almost all ages, having some experience of using the robots to achieve a goal reduced people's tendency to think of it as having human-like thoughts and feelings. Although we might make sense of new technologies like robots in ways that are familiar to us – using the same tools that we use to make sense of other people (anthropomorphism) – the results suggest that as we become more familiar with robots in our homes and schools both children and adults may develop new ways of making sense of them.