

What Happens When We Prejudge the New Emotional Robots?

By Professor Kevin Bennett Ph.D. www.beaver.psu.edu

Can research psychologists use traditional measurement techniques to measure personality, group behavior, and other typical “psych things” on robots? Yes. And it turns out that many of the perceptions we form and biases we hold in creating first impressions also apply to the world of robots.

Recent research suggests that we project personality characteristics on to robots based on physical characteristics, how they sound, and what function they serve. In general, when we anthropomorphize, or give human-like qualities to an inanimate objects, we feel emotionally closer to that machine. But this only works up to a point. In some cases, animating an object does not work in the long run. Remember “Clippy” the Microsoft Office Assistant (also known as the Microsoft paperclip)? He was cute for several moments until he quickly became utterly unbearable.

So why do we not just build a robot that looks just like a human, but without the nuisance factor? One difficulty is that eventually you run the risk of falling into the uncanny valley. This is a spot on a graph at which the robots seem so human-like it becomes eerie. Up to a point we prefer human-like traits in robots until the robot becomes almost indistinguishable from humans (e.g., clowns are sometimes scary).

Measuring Psychological Features of Social Robots

As of 2018, a little over 1000 studies have been conducted on meaningful robotic-human interactions (i.e., social robots). According to findings presented at the 2018 Technology, Mind & Society Conference by Stanford University researcher Jeff Hancock, nearly all of these studies focus on one robot at a time. His research team, including Sunny Liu and directed by Byron Reeves, looked at 342 robots in a single study and asked people to evaluate the personality of each robot.

Based on photographs, participants assigned personality ratings to robots.



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Some were cute, some were furry, some were very metal and mechanical. Robots come in all shapes and sizes, and this was the first known study to show all 342 “social robots” together

Viewing Robot Personality Through a Stereotype Lens

The Stereotype Content Model (Fiske, 2002) proposes that across cultures people initially classify others along two dimensions of personality (warmth and competence). Research by Fiske et al. (2002) suggests that we use two broad dimensions to evaluate people during typical interactions: warmth and competence. This groundbreaking research that helped psychologists understand how we form perceptions of others is now being applied to the psychology of robot personality.

For example, a very talkative and physically >>>

cute robot is likely to be seen as friendly and approachable. Another robot might look strong and physically imposing. Based on this, we ascribe personality traits. It turns out that the way in which we ascribe personality to robots matches up closely with the way that we classify people when we use stereotypes.

When subjects were asked to rate the robots along dimensions of warmth and competence, the researchers found that perceptions differ depending on how they look. Combinations of scores on the warmth and competence dimensions produced four categories of personality.

A combination of warmth and competence, the gold standard in robot design, was associated with desirable social partners. Robots in this category were agreeable and they seemed to know what they were doing so they could function appropriately to accomplish goals.

Other robots were lacking in warmth, but they were perceived as very competent. These are very muscular looking robots who look like they could execute a physically demanding task with ease. Some robots were lacking in competence but they

made up for it in warmth. These are cute, cuddly, sometimes fuzzy robots. Often with big eyes and a child-like features, they do not seem overly competent but they sure are warm and cuddly.

The final group is lacking in both warmth and competence. They were perceived as lazy and disinterested in others. Mechanical in disposition, but without any real function, these robots

look like weird, useless devices.



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Prof. Bennett's research, *psychological science at the intersection of urban design and mental health*, addresses three big questions: (1) What are the meaningful ways in which people differ in personality, emotion, and decision making across physical spaces? (2) What are the root causes of these individual differences? (3) What are the important outcomes of all this?

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