

Chapter 10

Exploring Technology Tendencies and Their Impact on Human– Human Interactions

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ABSTRACT

Although traditionally researchers have focused on making robotics more user-friendly from a human perspective, a new theory has begun to take shape in which humans take on the perspective of a robotic entity. The following set of studies examined the concept of technomorphism defined as the attribution of technological characteristics to humans. This concept has been mentioned anecdotally and studied indirectly, but there is nothing currently available to tap into the various forms that technomorphism may take. Through the study of technomorphism, researchers have come slightly closer to the question of how technology is influencing our perceptions of what it means to be human. The findings from this work should help fuel the desire of others in the field to think about the potential influences of technomorphism during the design and implementation of new devices as well as in how technology may be related to how we perceive each other.

INTRODUCTION

What makes us human? That is a philosophical question with many intricate pieces. In this paper, there will be a focus on one of those small pieces. More specifically,

DOI: 10.4018/978-1-7998-6453-0.ch010

how has technology influenced our perceptions of what makes each other human or not? As Brian Christian exclaimed in his book *The Most Human Human*, “in the mid-twentieth century, a piece of cutting edge mathematical gadgetry was ‘like a computer.’ In the twenty-first century, it is the human math whiz that is ‘like a computer.’ An odd twist: we’re like the thing that used to be like us” (p. 11). Christian later asks a question which is the crux of the current work: “Does the fact that computers are so good at mathematics take away an arena of human activity, or does it free us from having to do a nonhuman activity, liberating us into a more human life?” (p. 13). So again the question of what makes us human is raised and how technology has changed the definition of humanity and the perception of other humans comes to the forefront.

Recently, operators working on the Mars rover were asked about their interactions with the distant robot. One engineer described how she used her knowledge of the robot’s vision to help move the rover by “cupping her hands around her face like the head of the Rover’s mast” (Moroney, 2010, p. 23). The engineer goes on to say that “I have frequently tried to put myself in the Rover’s head and say, what do I know about the world...?” (Vertesi, 2008, p. 281). Although traditionally researchers have focused on how to make robotics more user-friendly from a human perspective, a new theory has begun to take shape in which the human makes decisions based on how a robot would. This type of thinking has enabled those working on the Mars rover to use their knowledge of how the robot viewed this strange world to go beyond the limitations of what a human would see. This concept, termed technomorphism, is the focus of this paper and includes the theoretical underpinnings as well as a scale creation designed to measure this evolving construct.

DEFINING TECHNOMORPHISM

The concept of technomorphism (first termed mechanomorphism) was mentioned initially in passing by Caporael (1986) as a “schema (albeit an elaboration of anthropomorphism) used by the scientific community, especially by researchers in artificial intelligence and cognitive science” to explain their field and understand complex concepts (p. 216). This term has since been expanded upon to define the attribution of technological characteristics to humans. In considering and perceiving a problem, a typical inclination is to consider the situation in an anthropomorphic way (Nowak & Bloca, 2003). Anthropomorphism involves the attribution of human-like characteristics to non-human entities that may be organic such as an animal, or inorganic, such as a robot or other object (Aggarwal & McGill, 2007). Although it is common to anthropomorphize as a way to understand and relate to non-human entities, perhaps equally as important is an examination of how we use those non-

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