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Summary and Synthesis of the Article, “ How Social Distance Shapes Human-Robot Interaction”

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Summary

According to the study conducted by Yunkyung Kim and Bilge Mutlu, it was discovered that proxemic distance had an influence on human-robot interaction. In fact, the research study focused on the relationships that people might develop with robots that are created to play “ different social roles” as they pertain to distance; and the study was also designed to determine how the different aspects of social distance form individuals’ experiences with and “ acceptance of robots” [4]. The research conducted by Kim and Mutlu acknowledged research studies related to the three dimensions of social distance which include: task distance, proxemic distance, and power distance. The authors of the research study were able to locate studies relating to task distance (which represents task structure), proxemic distance (which describes nearness) and power distance (which denotes organizational hierarchy) [4].

Kim and Mutlu mention Hinds et al did a comparison in their study of people’s perceptions of roles played by robots as supervisor, peer, and subordinate, and discovered that individuals were less likely to feel responsible for a task completed by and “ give credit” to the robot if the robot was in a supervisory role [2]. The opposite was the case when the robot performed a peer or a subordinate role [2]. Kim and Mutlu recognize <https://assignbuster.com/critical-discussion-and-synthesis-article-reviews-examples/>

that the study conducted by Andrist et al that indicate that when robots which had the capacity to manipulate language well had the ability to lead persons because it indicated that ability indicated to these persons that their expertise and authority was established [1].

In studies where robots facilitated competitive and cooperative task structures, illustrated that people believed that robots which were cooperative had high levels of intelligence and were more sociable[6]. On the other hand, persons reported more participation and enjoyment in the competitive task compared to the cooperative task [6].

In studies which focused on proxemic distance noted that individuals prefer robots to stand at an intermediate distance away from them (that is, 1 to three meters). They were more comfortable with this distance when compared to close (less than 1 meter) and far (more than 3 meters) [4].

However, Kim and Mutlu were careful to note that there were studies which failed to fully address the extent to which norms and expectations of human interaction are placed on robots in group settings, for instance, when compared to “ human-human social distance” [4].

The solutions provided by Kim and Mutlu involve using the data gathered from their research to provide guidelines in the design of robots, as it relates to the topic of social distance. The authors of the research did their evaluation of the research by formulating four different hypotheses examining the impact of the three dimensions of social distance: task distance, power distance, and proxemic distance. Their findings revealed that participants of the study were comfortable interacting with a supervisor robot which was close and a robot, with a subordinate role, which was

distant [4]. However, it was discovered by the researchers that participants' " performance worsened, regardless of its power distance" [4]. Furthermore, their research revealed that when competitive robots were close and cooperative robots were distant, users' performance with these robots improved [4].

A major challenge posed by this research is the creation of suitable experiments which allows the researchers to adequately examine the robot's and human's behaviors while participating in a serious task which requires " significant interpersonal and organizational consequences" [4]. The participants were required to interact with robots within the context of a card matching game. Consequently, more research is needed to correctly assess the interaction of robots and humans participating in a variety of tasks. Kim and Mutlu admitted that another important challenge which they had to experience while conducting the research involved not being able to control the robot's behavior without the use of " scripted responses" []. They argue that this may have affected the participants' " satisfaction and rapport" with the robot [].

In addition, the experiments conducted by the researchers only facilitated short-term interactions with the robots []. They contend that long term interactions with robots could significantly affect the impact of social distance on human -robot interactions.

Moreover, Kim and Mutlu admit that power, task, and proxemic distance are not the only dimensions of social distance that can influence human-robot interaction.

Furthermore, the researchers contend that the morphological characteristics

of the robot, which was “ child-sized humanlike” robot, may have had an impact on the findings of the research; and, as such, more research needs to be conducted as it pertains to human-robot interactions with robots with varying morphological characteristics.

The research conducted by Kim and Mutlu can be combined with other ground breaking research such as mobile robots, which function in air, land, and sea and collaborative missions in military combat and medical robots. It will be interesting to note humans interact, bearing in mind the various aspects of social distance, with robots within the medical industry or robots which have a mobile function.

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