Insights into Trust in Everyday Technologies

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Over the last several decades, technology has increased in all aspect of our daily lives from on the job to at home to leisure activities to doctor visits. In fact, one could not even function appropriately in today's world without access to computer and technology such as email and other platforms which have become essential components in our day-to-day interactions with others. It has become essential to understand how humans interact and rely on these technologies. A user's trust in the technology is a key component of understanding human-technology interaction, but little is known about ratings of trust in everyday technologies. There has been a great deal of research in trust in automation demonstrating the key role it plays in use of the technology. Both initial adoption and use of technologies is impacted by trust (Parasuraman & Riley, 1997). After establishing initial trust for adoption, then trust calibration is needed to prevent over-trust which leads to overreliance (Lee & See, 2004; Parasuraman, Sheridan, & Wickens, 2008). Trust is complex and has many components. Prior research has demonstrated trust can be broken into two distinct components: trust and distrust (Jian, Bisantz, & Drury, 1998). Understanding perceptions of trust in automation gives insight into how humans both feel about the automation, but also could explain use or misuse.

As trust can impact the human-automation interaction, it is important to also understand trust in general and everyday technologies. The goal of this study was to explore peoples trust in everyday technologies. To evaluate trust and distrust in 23 technologies, participants were recruited from SONA (2 hours of credit) or Mturk ($5.00). 193 participants completed an online survey. Of those, fifteen were excluded because they failed at least one of the attention checks. 178 participants were included in the final data with a mean age 33 years (SD=14.36, range: 18-72). 47.2% were male (84) males and 52.8% (94) females.

To evaluate trust and distrust, we used a trust in automation scale developed by Jian et al. (1998). Participants reported their trust for each of twenty-three technologies which included technologies such as: camera, dishwasher, e-book reader (e.g., Kindle), electric can opener; electric razor, and wireless-enabled wearable technology (e.g., Fitbit).

In general, participants reported low distrust for the 23 technologies (M=1.80, SD=1.08) The highest level of distrust trust was in apps (M=3.22, SD=1.54) and intelligent personal assistants (e.g. Alexa) (M=3.02, SD=1.69). The lowest level of distrust was in safety glasses (M=1.25, SD=0.71) and washing machine (M=1.28, SD=0.76). Participants reported a moderate level of trust for all the 23 technologies (M=5.02, SD=1.28). The highest level of trust was reported for safety glasses (M=5.84, SD=1.08) and wheelchairs (M=5.66, SD=1.18). The lowest level of trust was reported for intelligent personal assistants (e.g., Alexa) (M=4.10, SD=1.45) and smart speakers (e.g., Google home) (M=4.27, SD=1.47).

In general people had a moderate level of trust in these technologies and low levels of distrust. This makes sense given that the list of technologies are generally commonly used by the overall population. For these technologies to be commonly used, trust would have to be at least a moderate level and distrust would need to be lower. The technologies that were rated highest for distrust and lowest for trust were relatively newer technologies. The technologies rated lowest for distrust and highest for trust varied in use from designed for safety (safety glasses), as an assistive technology (wheelchair), to an everyday appliance (washing machine).

This study demonstrates that a moderate level of trust may be all that is needed for use for these types of technologies, but there is still some variability within them that needs further exploration. Future research could explore how this trust is related to technology adoption, frequency of use, and explore a more extensive list of newer technologies. This study gives insights into how there is in general a moderate level of trust for common technologies.

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