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Issues in the Sociology and Metaphysics of "Ubiquitous Communication in an Intelligent World"

Will humans come to view some intelligent communicating objects as human-like, or even value them more than real humans?

Historically, people have made enormous emotional and material investments in inanimate objects, and have repeatedly ascribed all manner of human or divine personifications to them. Rocks, springs, bones, and swords are but a few of such objects. Some people also believe that communication forms -- ranging from prayers to cell phone text messages -- are able to invoke supernatural powers. It is therefore more than plausible that people will invest their intelligent systems with similar anthropomorphic or transcendental qualities.

Mirror-neuron systems of the brain can lead people to attribute emotions and personalities to objects. Research indicates that as machines act and appear more human-like, people are more likely to respond to them with greater emotional richness. Evidence also suggests that the more one's life seems dependent on a machine, the greater is the likelihood that people will anthropomorphize it. A contemporary example may be seen among US army demolition specialists stationed in Iraq. The lives of these soldiers depend on their bomb-disposing robots. Over time, soldiers imbue their robots with personalities and pet names, treating them as comrades, giving them medals when damaged, and even funerals when destroyed. Singer (2009) relates how, in tears, a soldier brought his shattered robot to a mechanic, begging him to repair it. The soldier rejected the possibility that the robot was simply a machine that could be replaced. But in an even more compelling example, soldiers have risked their lives, crawling into live enemy fire, to retrieve their robots that have been knocked out of action, thus they strangely reverse the entire *raison d'être* of the bomb-disposal robot.

There is nothing new per se in the process of imbuing inanimate objects with human characteristics, and subsequently worrying about their "feelings," and even comfort. Many early religions consisted largely of such practices, but the process spans all sectors of human endeavors, not only the sacred but also the profane. Volcanoes are thought by many who live at their foot to have consciousness and even the ability to respond angrily to human behavior. Sailors give nicknames to their vessels, and may weep upon witnessing their ship being scuttled. Ethnographic studies of emotionally responsive robot pets given to institutionalized elderly highlight the importance of social perception over physical reality. One research study found that elders who are in old age homes who are given robot-pets begin to have warm feelings for them. The pets, which are their constant

companions, become emotionally more meaningful to the elder than their real children (who seldom come to visit them) (Turkle, 2008).

The world of intelligent communicating devices will intersect in other ways with fundamental brain-based human processes. One such area is that of uncertainty reduction and control of the external environment. The need for control leads people to perceive patterns and impute causal linkages among phenomena that are actually random stochastic processes (Whitson & Galinsky, 2008). This presumably would lead people to project human-like qualities, including perhaps even to the point of believing there is personalized intentionality in the processes of intelligent communicating systems, even if no such qualities were present in the systems.

Will people's mental faculties decline?

One promise, and threat, of a regime of ubiquitous communicating intelligent devices is that every deed and perhaps every thought could be recorded, retained and subjected to analysis. Certainly such capability invokes fears of an Orwellian world, and any thorough treatment of the topic deserves careful appraisal from this vantage point. Yet such technology also invokes issues at the level of human epiphenomena. A growing body of evidence suggests that mental faculties that go unused tend to whither, just as is the case with human musculature. If this assessment is correct, it may be that our intelligent ubiquitous devices will, by taking over so many of our mental tasks, lead to the withering of our intellectual capabilities and weakening of our memories. Our ability to accept mental challenges and progress as a society, and well as individuals living a life, may thereby be diminished. We may not have to wait for complex intelligent systems to see if this prediction bears bitter fruit; it is already being said that Google degrades an individual's capacity to remember facts since they are now readily available on the Internet.

Of course the future intelligent ubiquitous devices could potentially make sure we optimally exercise our brains. A skeptic might think that the prospect that this approach will be successful is about the same as that of today's smart computer-guided exercise regimes that could, in theory, help everyone to become fit. But perhaps that skeptic would be disappointed: over the past four decades, the mean intelligence quotient in all industrialized societies has been rising (despite the proliferation of TV!). This widely confirmed result could be due to the fact that the modern technological world is actually indirectly enhancing people's abilities in abstract reasoning and other tasks related to intelligence. So the future is far from bleak in this regard.

Will intelligent communicating objects affect "Dasein"?

Based on experience to date, it is, surprisingly, unlikely that these intelligent communicating objects will have a profound consequence for our sense of Dasein (Heidegger, 1927 transl. 1996). In light of our evolutionary heritage, we are likely to continue to rely on other humans to guide our tastes, even as we influence theirs. Just as computers can easily help us find music we enjoy, but are unable to compose music that we enjoy, human judgment (even as aggregated by software and sensors) will continue to be important to us. Editors remain vital in story selection for most news outlets despite the flood of raw information feeds and citizen reporters. Social networking sites may help users to find and

make friends, and games will provide avatars for players, but even so, most users will seek out and try to engage other humans within these worlds.

It would seem that given predictable progress in developing intelligent systems, and the concomitant improvement of, many of our daily irritations must evaporate. However, that is not going to be the case; today's frustrations will be superseded by other ones, many of which cannot be foreseen but which will surely arise. With a bit of tongue in cheek, one could say that the "problems" of the saber-tooth tiger and the Black Plague, to take two instances that used to upset people, have been solved, yet people still seem to find plenty about which to complain. The promise of intelligent vehicle systems (IVS) to resolve traffic congestion is often cited as a potential case to show how future systems could benefit society. Yet though they might succeed in eliminating traffic jams, and save time and energy, they would not solve the problem of movement *per se*. After all, one would think that having a mere fifteen hour delay at an airport while taking a trans-Atlantic flight would be less than a trifle for any passenger, given the daunting history of trans-Atlantic sea voyages over the past 500 years. Yet few of today's airline passengers would accept such a delay equanimously; rather they would decry the infuriating delay. In this light, therefore, it is predictable that whatever problems our future systems solve, new, equally irritating ones will replace them (Cf. Erikson, 1966). In fact, at the very least, the careers of tomorrow's politicians will depend on being able to identify new problems.

Many of the problems that people face may not be amenable to technological solutions at all. Some may arise out of contests over values or even extrinsic characteristics such as religion or ethnicity. For example, conflict is growing between religious and ethnic factions in many parts of the world, often fostered and sustained by information technology. (It may be that the communication technologies are impeding the assimilation of certain immigrants into their host societies.) So it is plausible that the intelligent communicating technologies of tomorrow, rather than solving inter-group problems, will exacerbate them. From an historical viewpoint, it is hardly unprecedented for information processing technology to be used to abet one group's extreme attempt to "solve the problem" of another group, namely through liquidation.

Human relationships at risk?

Reproduction and child-rearing practices may be largely off-loaded to new devices; remote systems are already widely deployed which allow parents in their offices to monitor their children in nursery schools or on their way to school. Sexual and romantic endeavors may also become focused on the constructed world of communicating devices rather than flesh-and-blood humans. A variety of remote tactile devices are being developed and marketed. Progress in these arenas would presumably further spur the development of single-person households, with the concomitant implications for energy and land use as well as urban life quality.

Will consciousness arise among these intelligently communicating machines?

If we accept the functional definitions of consciousness, along the lines advocated by philosopher David Chalmers, the answer might well be yes. After all, could not one at least in theory draw on all these devices to create a personality which included a sense of

self-awareness? On the other hand, philosopher John Searle has been tireless in attacking such notions. Regardless of the ultimate outcome, though, there have already been attempts to extend various models of rights to robots. So we can expect that there will be rights (and responsibilities) given to these systems by humans. However, W. I. Thomas' dictum -- that beliefs may be unrelated to reality but are factual in their consequences – is applicable here. That is, even if these systems never achieve some form of sentience, as long as people believe they have such, the consequences will be great for the humans that live along side them.

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