

HEADS-UP

Why your next telephone may come mounted on a neck. By Jaron Lanier

I've been thinking lately about two seemingly unrelated questions that have a hidden and, I suspect, significant connection:

1. Why do you have a neck?
2. Why hasn't videoconferencing ever caught on?

Let's start with the second question. Nearly a century ago, early science fiction authors and futurists predicted that airships and videoconferences would someday be ubiquitous. Air travel became ordinary by the mid-20th century, but today visual telecommunication remains a marginal technology at best. E. M. Forster, who anticipated the World Wide Web and many other aspects of the Internet in his 1909 story "The Machine Stops," assumed that two-way video transmissions would inevitably become the most common form of communication. It was the principal mistake in his otherwise amazingly prescient vision.

Long-distance videoconferencing was demonstrated way back in the late 1920s, but the idea flopped even as television soared. In the 1950s, AT&T introduced videophones once again, and once again they arrived with a thud.

In every decade since, the pattern has been repeated, despite what seem to be irrefutable reasons for people to seek out videoconferencing. Travel is time-consuming and expensive, and the planning needed to bring a group of people together can be tricky. In recent years, motivations for developing viable videoconferencing have multiplied. Now we need to worry about global warming and the high price of jet fuel. And dangerous new viruses being distributed by air travel. And terrorism.

So once again a variety of videoconference technologies are being introduced, and once again something seems to have gone wrong. At first users are enthusiastic, but over the course of a few months usage drops off, and soon the devices are abandoned. Why?

There is a world of opinions. A perennial speculation is that although people initially think they want a visual connection, they ultimately prefer to be hidden, except



when they go to the trouble of traveling to attend a meeting in person. Perhaps.

A community of "tele-immersion" researchers suspect a deeper answer: Maybe there is something about how our brains are fine-tuned to perceive other people that video telecommunications have simply not picked up.

The most famous unsolved problem in videoconferencing involves eye contact: Since the camera and the display screen are separate objects, each time you look at the screen you shift your eyes from the camera. Someone watching you in a videoconference notices that you constantly look away. If the camera is above the screen, you always appear to be looking down. Studies show that this lack of eye contact reduces trust, collaboration effectiveness, and satisfaction with the interaction.

Whole libraries could be filled with accounts of the zany ways people have tried to overcome the eye-contact conundrum. There have been cameras mounted in holes in the display, plenty of tricks with mirrors, and lots of computer-graphics schemes to create the illusion that each person in a videoconference is looking in a different direction than is actually the case.

The more you study the phenomenon, the more subtle the human-factor requirements turn out to be, because the amount of eye contact maintained by people varies enormously for social and situational reasons. For instance, high-status people tend to seek eye contact more often than low-status people, and various cultures, including some Muslim ones, avoid prolonged eye contact in certain settings. Even while eye contact is not happening, the problem doesn't necessarily go away, and tech-