

The Boston Globe JEREMY RIFKIN

Virtual companionship

By Jeremy Rifkin | October 10, 2006

OVER THE PAST 20 years or so, we have preoccupied ourselves with developing ingenious new ways of communicating with each other. Our cellphones, personal computers, Blackberries, text messaging, e-mail, and the Internet connect 25 percent of the human race in a speed of light global village. At the same time that we are connecting the central nervous system of our species in a single, electronic embrace, the human vocabulary is plummeting all over the world, making it more difficult to express ourselves and participate in a meaningful way with our fellow human beings. It appears that we are all communicating more, but saying less.

According to a national survey conducted by the US Department of Education, English literacy among college graduates has declined dramatically in the past 10 years. Only 31 percent of college graduates today are proficient in English literacy, compared with 40 percent just a decade ago. Grover J. Whitehurst, the director of the DOE Institute responsible for overseeing The National Assessment of Adult Literacy, said that he believes that literacy is declining as a result of the increase in television viewing and surfing the Internet.

Worse, it seems the more connected we are in our electronically mediated landscapes, the lonelier we find ourselves. A study conducted by the Kaiser Family Fund showed that American children now spend an average of 6.5 hours per day watching television, surfing the Internet, text messaging, and playing with video games and other electronic media.

More worrisome, the study found that most children interact with electronic media alone. For example, older children spend up to 95 percent of their time watching television alone, while children between the ages of 2 and 7 watch television alone more than 81 percent of the time. Our children are seeping further into virtual worlds and losing the emotional attachments that come with face to face real time participation with their fellow human beings. Nor are American youngsters an anomaly. Children in other high-tech countries are following close on the heels of their American peers. This new human condition can best be described as the "high-tech blues."

Are future generations to be forever lonely? No, say the technological optimists. Engineers at some of the leading technology centers are feverishly working on the next generation of technological marvels to address our lonesome high-tech existence. The field is called "affective computing" and the goal is to create technology that can express emotion, interpret and respond to the emotions of their human handlers, and even establish a sense of intimacy with their human companions. Built-in cameras allow the computers to detect even subtle changes in facial expressions, which are then processed in real time, allowing the computer to recognize the emotional state of the person. Researchers at the Massachusetts Institute of Technology have even developed an "affective wearable computer" that picks up different emotional states and subtle change of emotion by detecting changes in heart-rate, breathing, skin conductivity, temperature, pulse, and muscle activity.

Rosalind Picard, one of the pioneer researchers in the field of "affective computing," reports on an amazing study done at the MIT Media Lab. A computerized virtual person named "Laura" plays the role of an exercise adviser, helping real-life subjects increase their physical activity levels. Laura is capable of conversing with her subjects and is able to use hand gestures, eye

gaze behavior, posture shifts, head-nods, and facial expressions. Laura, like any good exercise trainer, provides her subjects with feedback on their performance, helps them improve on their regimen, and gives empathetic verbal and facial feedback, cued to the appropriate emotional state of her human companions.

The reactions of the subjects are revealing. Compared with subjects interacting with a "non relational" computer interface, a number of the subjects -- but not all -- working with Laura reported an emotional rapport similar with what one might expect with a real-life trainer. One subject in the study remarked, "I feel Laura, in her own unique way, is genuinely concerned about my welfare." Another said, "I feel like Laura . . . likes me." A third subject confided, "Laura and I trust each other." Here is a typical response: "I like talking to Laura, especially those little conversations, about school, weather, interests, etc. She is very caring. . . I found myself looking forward to these fresh chats that pop up every now and then. They make Laura so much more like a real person." To be fair, there were skeptics as well. One subject said, "Personally, I detest Laura."

Other experiments conducted at Stanford University report similarly positive results with empathetic embodied computer agents interacting with subjects, leading researchers to conclude that "embodied computer agents are indeed social actors in the truest sense of the word 'social,' capable of forming relationships with users comparable to those found in the world of human-human interactions."

Frankly, it's hard to know whether to laugh off such technological pretensions as sadly pathological or whether to be truly frightened. There is no doubt that a growing number of young people find themselves enmeshed in virtual worlds where make believe substitutes for real-life experience. With "affective computing" looming on the horizon, the truly lonely can look forward to interacting with silicon companions, emotionally programmed to empathize and even care, to be a friend, and an intimate confidant.

Progress? Surely we can do better.

Jeremy Rifkin is the author of "The Age of Access" and president of The Foundation on Economic Trends. ■