

# Real nature beats technological stand-ins for human well-being

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This image shows a study participant with plasma screen displaying a real-time nature view. Credit: Peter Kahn, University of Washington.

As our environment degrades and technology improves, can technological versions of nature become suitable replacements?

Will people be satisfied by views offered by wall-mounted plasma screens instead of real windows? Will activities like telegardening be as rewarding? Will relationships with robotic pets be as close as those with living animals?

In a new book, a University of Washington psychologist argues that to flourish, humans need exposure to the natural world.

"We're losing not just nature but our interaction with it," said Peter

Kahn, a UW associate professor of psychology. Kahn describes his studies of [human interactions](#) with technological substitutes for nature in a recently published book, "Technological Nature: Adaptation and the Future of Human Life," published by MIT Press.

Kahn warns in the introduction that he is not a Luddite. "I love technology. But I am also keenly aware that there are costs that accompany almost every [technological innovation](#)."

In "Technological Nature," he describes his studies showing how substitutes for nature affect our physical and psychological well-being. He generally finds that while technological nature is better than no nature, it is not as good as the real outdoors and exposure to living beings.

In a series of studies, Kahn investigated the [health benefits](#) of having a window-like display in offices. He found that participants with a wall-mounted plasma screen displaying a real-time outside nature view looked at the screen as often as participants who had a window with a real nature view looked out their windows. But participants with the screen did not show the same decrease in [heart rate](#) after a mild [stressor](#), indicating that a real window with a nature view can counteract stress.

"If you care about [stress reduction](#), human well-being or human-flourishing, we need a direct connection with nature," Kahn said.



This is the robot dog, AIBO, used in the University of Washington studies.  
Credit: Peter Kahn, University of Washington.

Similarly, in a chapter on telegardening, a Web-based program allowing people to remotely activate a robotic arm to plant and water a real-life garden, Kahn found that people's experience with the activity did little to cultivate an interest in nature. It was more likely to be used as a subpar gardening substitute, such as by one participant who was recovering from surgery.

Kahn writes that it's "absurd" to put too much effort in using technology to recreate nature indoors when instead we could put the money, time and energy into designing buildings and urban environments that "open out into nature and that have nature to open out into."

Technological stand-ins for pets also come up short, in Kahn's estimation. He describes his studies using robotic dogs as a way to assess how people, including preschool children and children with autism, can engage with robots.

While people seemed to like the robotic dog, felt a social connection with it and attributed mental states to it, they did not go a step further in engaging it morally, as they would a biological dog. "They could ignore it whenever it was convenient or desirable to do so," Kahn writes in the chapter "Hardware Companions?"

Kahn emphasizes that "we need rich interactions with nature for our physical and psychological well-being." But he adds that humans "are losing those interactions because we are quickly and pervasively degrading if not destroying large portions of nature, which are required for such interaction."

It will only get worse through a condition he calls "environmental generational amnesia," in which people consider the natural environment they encounter as children to be what's normal. Eventually we consider a degraded, polluted environment to be the norm.

It's a form of adaptation that deeply concerns Kahn.

"I believe that technological nature will always result in a diminished experience compared to its [natural](#) counterpart," Kahn writes in the final chapter. "If that is true, then we should employ technological nature as a bonus on actual nature, not as its substitute."

Provided by University of Washington

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