

## UCSD cognitive scientist Don Norman explores why things don't work

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Media Contact: Dolores Davies, (619) 534-5994

### UCSD COGNITIVE SCIENTIST EXPLORES WHY THINGS DON'T WORK

Do you ever wonder why you can't program your VCR, or why when you go to use that sleek, new cooktop in your hi-tech kitchen, you seem to always turn on the wrong burner? In a world that has become increasingly technological, many of us feel increasingly incompetent, even downright stupid, when it comes to performing some of the simplest tasks in life.

Don Norman, chair of the cognitive science department at the University of California, San Diego, says we needn't feel stupid anymore, because it's really not our fault. UCSD's "gadget guru" and author of the new book "Turn Signals Are the Facial Expressions of Automobiles," (Addison-Wesley), says that we are tyrannized by the very machines we have come to depend on, and that to reverse this alarming trend we must develop technology that is more user-friendly.

"I believe we can create a humane technology, one that serves and enhances people and society," says Norman. "But this won't happen unless educated, concerned people take a hand in the design and application of our technology. The aim of "Turn Signals" is to increase our sensitivity to the dehumanizing aspects of technology, in the hopes of making people realize that we can change it."

Norman, the author of the highly-acclaimed book "The Design of Everyday Things," has been studying the perversity of inanimate objects and our inability to master them, for the last decade. In his research, as well as in his recent book, Norman has examined the design pitfalls of not only the usual suspects -- computers, VCR's, and other machines -- but also of living and working environments such as the kitchen, the office and even the cockpit of a 747.

"Some people watch birds. Others watch people. Some watch cars or boats, or sports. I watch technology, especially the small, common, everyday variety," says Norman. "In particular, I watch the way people interact with technology. My goal is to socialize technology, to humanize technology, so it works for us and not the other way around."

Norman does not like what he sees, to put it mildly. His pet peeves include doors that have been designed incorrectly, hence requiring "an instructional manual in the form of the words 'push' or 'pull.'" Drinking fountains that show no obvious way of being turned on, automobile radios that cannot be operated safely while driving, token-dispensing machines that do more to confuse than serve.

Other objects of poor design can lead to serious injury and death, says Norman. Why, for example should pilots of multimillion dollar passenger aircraft have to use three-cent styrofoam cups placed over levers in the cockpit to remember to perform critical operations? Why aren't reminders built into the cockpit? Why are there landing gear levers on private aircraft that look the same and are located next to each other? Designed with the same logic (or lack thereof), Ford has a foot brake release and hood release in its automobiles that look the same, and are positioned right next to each other. Has anyone ever pulled the wrong lever? "Yup," says Norman.

"There are good design principles that avoid these problems," he says. For example, "In all commercial airplanes, not only are the flaps and landing gear controls separated from each other but a principle called shape coding is used. The flap control is shaped like a flap, and the landing control is shaped like a wheel. If the wrong control is grabbed, the error can be detected immediately by the feel."

Fortunately, Norman's ideas for producing well-designed, workable technology have gotten the attention of numerous public and private sector entities outside of academia. Norman serves as a consultant to numerous companies on design, computer interfaces, consumer products, and human error. He also directs an industrial affiliates program in cognitive science, which provides opportunities for him and his students to work with industry so that theories and applications of cognitive science can interact, leading to better science and better products.

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