High-tech quest for a user-friendly Web

PALO ALTO, Calif. (AP) — How do people find what they're looking for on the World Wide Web? Most simply follow the call of the wild. The same theories that describe how animals behave while sniffing for prey also can predict how people ferret out information in the jungle of cyberspace, researchers say. Foraging theories, developed by ecologists decades ago, are now being applied to Internet usage in an attempt to understand how Web sites can be made more intuitive and less like a maze.

Ultimately, researchers hope to develop a program that automatically determines a site's usability, said Ed Chi, a computer scientist at Xerox's Palo Alto Research Center.

The key, he said, is understanding Web surfers' basic instincts, so searching for information becomes more intuitive.

"We discovered people don't like to think. They'd rather have the thinking done for them," Chi said.

Usability is more important than ever, as both Internet usage and the number of sites soar. Many people have always found it easier for some reason to buy groceries, books and dog food at actual stores.

To find out why, computer scientists and psychologists are working together on the project at PARC, where such technologies as the computer mouse, laser printers and Ethernet networking first saw light.

At the very least, the team is providing a scientific foundation for Web design, said Jakob Nielsen, a Web usability consultant.

"There is an appalling lack of good research in Web usability and fundamental thinking in the field," he said. "Most academics think that the Web is beneath them, that it's too good and it's too practical."

One of the biggest problems is that users are often left clueless as where to go next, like tourists who are stuck in a foreign country without knowing the language.

To get a better sense of how people use the Web, the scientists asked research subjects to perform simple tasks. They were closely watched, told to talk about...
what they were doing and connected to a device that tracked their eye movements.

In one chore, the subjects were told to find and buy a poster for the movie *Antz*. Researchers then studied each link and site as the users clicked from search engines like Alta Vista to more specific sites.

By analyzing users' actions, the links and other data, the scientists determined the strength of the information "scent."

"You can think of information scent as basically the idea of leaving bread crumbs all over the place in the information environment," Chi said.

In the real world, strong scents lead animals to food. It's an important part of foraging theory, said Peter Pirolli, a cognitive psychologist at PARC.

"You're always judging the cues in your environment with respect to your experience, saying what information is relevant to what," he said. "You're continuously making those judgments."

Researchers say the most usable sites provide useful clues to where a link will take a user. Amazon.com's site, for example, generates suggestions based on a user's purchases and previous searches.

The experiments provide insight into other reasons why Web surfers might abandon one site in favor of others. An overabundance of links and confusing presentations are common problems.

"They decide to quit not because the information isn't there, but because the amount of cognition it would take is so high," Chi said.

Besides better understanding why some sites are easy and others just plain confusing, the team hopes to finish a program that can figure out how usable a Web site is.

Bloodhound, as it's called, analyzes words and links, determining scent based on a formula. It then computes how easy it would be to find information, without having to hire human testers.

"Our idea is to take as many people out of the usability loop as much as possible," Chi said.

Nielsen doubts such a program will ever be as effective as watching a real people click their way through Web sites — at least until artificial intelligence is available.

But, he added, the PARC research does lend scientific credence to good design practices, such as including meaningful descriptions. Though obvious, the rules are not always followed.

"Commonsense isn't as common as you think, as proven by how often rules are violated," Nielsen said.

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