

◆ *Human Factors in Reading Printed and Online Texts*

Speaker:

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Readers' strategies for finding, using, and remembering information are strongly influenced by its design, whether it is presented on printed pages or on computer screens. So argued Philippa Benson, editor for the Center for Applied Biodiversity Science at Conservation International, in the closing plenary session of this year's CSE annual meeting.

Benson first provided some context for the human factors involved by reviewing some highlights of how the idea of information design evolved. The overview began with a discussion of the venerable Flesch readability formula, introduced in 1948, which was the first attempt to quantify evaluation of a text's readability. Benson then pointed to the emergence of professional organizations concerned with technical communication and several fields of research that developed over the next several decades. Research in typography, readability, and human comprehension together began to show that how information was presented could influence readers' ability to find and use what they needed to perform specific tasks. By the middle 1970s, however, researchers were beginning to question the value of quantitative readability measures. Benson illustrated this point by noting that the sentence "The car slapped the dog!" would be judged as perfectly readable by the standard measures of the day.

At the same time, she said, technol-

ogy and science were advancing steadily. The Apple microcomputer debuted in 1977, followed by the IBM personal computer in 1981. Benson described how these innovations automated many research tasks. Concomitantly, the Document Design Project, sponsored by the National Institute of Education, and other studies detailed the many behavioral strategies that readers use when approaching documents depending on their purposes. Researchers started investigating text in terms of reader responses rather than of content alone.

Benson talked about some of the differences between paper and computers in readers' ease of performing particular tasks. Her first example was annotating—highlighting main points, recording questions, or marking ideas or reactions within text. On paper this task is performed easily, with minimal interference with the primary reading purpose (skimming, glancing, and so on). On computers it can feel like "tampering" with the text, and it can greatly interfere with the primary reading purpose.

She also discussed differences between the media in readers' ability to move between and among documents. She described the typical editor's desk: papers laid out, making them instantly available for inspection and referral. Paper has the added advantage of being tactile; the more senses that are involved in the reading process, the more memory that will be supported. Electronic documents lack this aspect, Benson pointed out; in fact, memory is less supported because of temporary disruptions in the process caused by having to switch between screens.

The last difference Benson covered was in the use of physical space in the reading process. Paper provides independent spaces for reading versus writing, allows quick reference to other documents, and offers greater visibility of more information

at a glance. Benson noted that the computer cannot compete—the reading and writing processes are not easily integrated, time for the reading purpose is lost because the reader must plan the computer display needed, and resolution is decreased by the need for overlapping windows.

Benson closed by recommending that attendees perform research on their own readers, and not only by using surveys. One tip was to use graduate students: They might not be cheap, she said, but they are less expensive than a reduction in readership. She also called for more in-house collaboration between and among graphic designers, authors, Web designers, technical editors, and others. She pointed out how each discipline has a different perspective and how the best documents result from the merger of perspectives. In the end, she said, the focus always should be on the reader.

An attendee asked Benson whether she thought that "paper is better than PCs". Benson said that although she was not a Luddite, she believed that technology needed to improve before it would be as easily used as paper. She responded to a question about the simultaneous use of paper and electronic documents by saying that using multiple tools can be effective in some situations. She also agreed with the comment that age could be a factor in choosing to use electronic documents; teenagers, having grown up with the technology, might be more comfortable and efficient with it. Benson recommended ways to increase comprehension of electronic material, such as "chunking" information into units and designing screens for multiple reading purposes. Finally, although the session's focus was on reading, Benson pointed out that the use of computers for writing tasks does seem to be universally accepted. 