

NRC report encourages fluency with information technology

The explosive growth of information technology is having a profound impact on our lives, according to the National Research Council (NRC). Whether academic librarians, accountants or assembly line workers, people are using technology such as computers, the Internet, and electronic commerce in different ways and with varying levels of skill and understanding. In response, the Computer Science and Telecommunications Board (CSTB) of NRC recently announced the release of a new report, "Being Fluent with Information Technology," funded by the National Science Foundation.

The study committee, chaired by Larry Snyder from the University of Washington, sought to understand what people need to know in order to use information technology effectively today and to adapt to tomorrow. Although the report is mainly focused on technology, it covers a broad range of literacy issues that are of concern to libraries and library education, such as what information workers and users of the future need to know. The study also approached the problem of understanding information technology from the standpoint of "fluency."

Fluency requires a deeper understanding of how computers work and mastery of technology for information processing, communication, and problem solving. Developing fluency is a lifelong learning process that requires people to continually build on their knowledge of information technology to apply it more effectively in their lives. Fluency is also characterized by different levels of sophistication in a person's understanding and use of technology.

Although fluency is achievable for most people regardless of grade level or experience, the report's framework for developing it focused on college students, because institutions of higher learning have the most experience creating courses about computers and related information systems. Colleges also serve a large constituency with a broad range of interests and specializa-

tions to which information technology can be applied.

The report goes on to state that successfully teaching how to use information technology effectively will require a serious rethinking of the entire college curriculum. Rather than having individual instructors review course content or approach, academic departments should examine how students will obtain the necessary capabilities by the time they graduate.

The committee found that there are three essential and interrelated components for using information technology effectively:

- Intellectual capabilities—the application and interpretation of computer concepts and skills used in problem solving. Examples include the ability to define and clarify a problem and know when it is solved; to understand the advantages and disadvantages of apparent solutions to problems; and to cope with unexpected consequences, as when a computer system does not work as intended.

- Concepts—the fundamental ideas and processes that support information technology, such as an algorithm; how information is represented digitally; and the limitations of information technology. Understanding basic concepts is important, the report says, because technology changes rapidly and can render skills obsolete.

- Skills—abilities that are associated with particular hardware and software systems. Skills requirements will change as technology advances, but currently they include using word processors, e-mail, the Internet, and other appropriate information technology tools effectively.

The prepublication version of this report (subject to further editorial correction) is available on the Web at <http://www2.nas.edu/cstbweb>. The final version will be available online at the same address, and in book form, by June through the National Academy Press (phone: 800-624-6242 or <http://www.nap.edu>).

Note

This report is based on an April 8 publication announcement from the National Research Council. For more information, contact Bob Ludwig, media relations associate, at 202-334-2138; e-mail: news@nas.edu. ■

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