Testing Information Literacy Skills
Author: Janet Murray

The Educational Testing Service (ETS) recently "announced the launch of the ETS ICT (Information and Communication Technology) Literacy Assessment, a simulation-based testing program that measures postsecondary students' ability to define, access, manage, integrate, evaluate, create and communicate information in a technological environment"(Barrish, 2005). The test measures "not just knowledge of technology, but the ability to use critical-thinking skills to solve problems within a technological environment"(ETS, 2005).

The test was administered for the first time to participating beta institutions between January and March, 2005. In a related article on the ETS web site, President & CEO Kurt M. Landgraf labels technology as "the fourth basic literacy…teaching children about technology is as fundamental as teaching reading, writing and arithmetic"(Landgraf, 2004).

The ETS ICT literacy assessment requires students to demonstrate competence in five areas by using technology tools to solve problems and design solutions. "It uses scenario-based assignments to assess all the ICT skills required of today's higher education students — not just knowledge of technology, but the ability to use critical-thinking skills to solve problems within a technological environment"(ETS, 2005). The five abilities tested are:

Define: The ability to use ICT tools to identify and appropriately represent an information need.
Access: The ability to collect and/or retrieve information in digital environments.
Manage: The ability to apply an existing organizational or classification scheme for digital information.
Integrate: The ability to interpret and represent digital information.
Evaluate: The ability to determine the degree to which digital information satisfies the needs of the task in ICT environments.

Big6ers will immediately identify these skills in familiar terms!
Define – Task Definition
Access – Information Seeking Strategies, Location & Access
Manage – Synthesis (5.1)
Integrate – Use of Information (4.1) and Synthesis (5.2)
Evaluate – ISS (2.2 evaluate sources) and Evaluation (6.1)

Students who take the test will demonstrate their abilities by using a proctored personal computer to create an academic research topic, locate information in databases and on the web, create concept maps, organization charts and tables, synthesize information in a word processing document, use a spreadsheet to compare and contrast information, rank web pages, sort e-mail, and create presentations. "The market didn't need one more multiple-choice test, and it didn't need another test that proves you know how to use Microsoft Word, et cetera," said Tom Ewing, director of external communications for ETS. "Educators needed to determine that their students had the ability to manage and process information through technology, interpret, then communicate it in [a] way that is meaningful and accurate" (Brumfeld, 2005).

The two-hour exam "presents the test-taker with a challenge and gives him or her the resources to investigate, Ewing said…For instance, the test-taker might be asked to perform an advanced search based on the need to find certain information. He or she might then be asked to use that information

to put together a graph or compose an eMail message that summarizes the results of the research and draws subsequent conclusions from the data" (Brumfeld, 2005).

Apply the Big6™ Skills to ICT Literacy

Those of us who teach in K-12 schools know that "students can identify … thousands of…potential resources on the Internet — and, as any teacher will attest, they are not always adept at sorting the wheat from the chaff" (Zeller, 2005). However, we can use the Big6 Skills to guide students in developing the critical thinking skills that will encourage them to *"define, access, manage, integrate, evaluate, create and communicate information in a technological environment."* How does this work?

Students use stage 1, Task Definition, to *define* their tasks. They may use a technology tool like Inspiration to create a graphic organizer identifying the aspects of the information problem they need to research. Then they use the skills they've learned in stage 2, Information Seeking Strategies, to *evaluate* sources of information. Is a particular web site credible? Is the author an expert on the topic? Is the information reliable?

In Big6 stage 3, Location and Access, students learn to use subject directories, subscription databases, and Internet search engines to access reliable sources of information appropriate for use in schools. They *manage* and *integrate* the information they've found through stage 4, Use of Information. Finally, they use technology tools like word processors, desktop publishing, PowerPoint and web pages to *create* and *communicate* in stage 5, Synthesis. The ETS test doesn't ask students to Evaluate their product and process, but it's that critical Big6 stage 6 that helps them improve their information literacy skills.

Karen Bruett, board chair of the Partnership for 21st Century Skills, observed, "It's not enough for students to master PowerPoint and Excel. They need to think critically about how they translate data and information into effective communication" (Warlick, 2005).

Information Literacy Standards

Look at the Information Literacy Standards for Student Learning developed by the American Association of School Librarians (AASL) and the Association for Educational Communications and Technology (AECT) and the National Educational Technology Standards for Students (NETS-S) developed by the International Society for Technology in Education (ISTE). Can you see how closely they align with the expectations of the ETS ICT Literacy assessment? For example, according to AASL: "The student who is information literate

- accesses information efficiently and effectively
- evaluates information critically and competently
- uses information accurately and creatively"

and four of the six NETS for Students emphasize using technology as a tool for productivity, communications, research and problem-solving.

One way to see the relationship between the standards and the Big6 is in a matrix I use to teach teachers: Applying Big6™ Skills, Information Literacy Standards and ISTE NETS to Internet Research. The Big6 course offered through the University of Washington's Online Learning also emphasizes using the Big6 Skills to achieve information literacy and NETS standards.

Personally, I've been directing my Big6 Skills instruction toward these standards since they were first announced, because I believe that these skills are essential for our students. David Warlick, author of *Redefining Literacy for the 21st Century*, concludes, "We live in a time when the very nature of

information is changing: in what it looks like, what we use to view it, where and how we find it, what we can do with it, and how we communicate it. If this information is changing, then our sense of what it means to be literate must also change…If we can establish an expanded sense of what it means to be literate in this new information environment, then we may achieve more progress, in terms of better preparing children for the 21st century, by integrating contemporary literacy, instead of integrating technology" (Warlick, 2005).

The Bottom Line

According to Robert B. Reich, author of *Work of Nations: Preparing Ourselves for 21st Century Capitalism*, "Critical thinking is a central aspect of the new economy." The 2004-2005 edition of the *Occupational Outlook Handbook* asserts that "The long-term shift from goods-producing to service-providing employment is expected to continue…Employment growth will be driven by the increasing reliance of businesses on information technology…Employment in the information supersector is expected to increase by 18.5 percent, adding 632,000 jobs by 2012"(U.S. Bureau of Labor, 2004).

Marjorie Bynum, vice president of workforce development for the Information Technology Association of America, also involved in the [ETS ICT Literacy] test's development, said, "These kinds of logical reasoning tests speak to employability skills. Increasingly, we're looking at the growing importance of non-technical skills — what we call employability skills" (Brumfeld, 2005).

Helping our students achieve information literacy and critical thinking skills is an important goal, regardless of what ETS chooses to test or NCLB mandates. Today's students must be able to purposefully access information from a variety of sources, analyze and evaluate the information, and then integrate it to solve problems in life and work as well as school. They need to learn information problem-solving skills, integrated with technology research and productivity tools, in order to be employable in the 21st century. Using the Big6 Skills can help them acquire and develop these important abilities.

Sources Cited

Barrish, Todd. "ETS Launches ICT Literacy Assessment, an Online Measure of Student Information and Communication Technology Proficiency." ETS News & Media 08 Nov 2004.

Brumfeld, Robert. "New test gauges ICT literacy." [l= http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=5504]eSchool News Online[l] 09 Feb 2005.

"ICT – Assessing Literacy for Today and Tomorrow." ICT Literacy Assessment. Educational Testing Service.

St. Lifer, Evan. "Literacy Skills Are in Vogue." *School Library Journal* 51.2 (2005): 11.

"Tomorrow's Jobs." Occupational Outlook Handbook. 2 June 2004. U.S. Bureau of Labor Statistics. Office of Occupational Statistics and Employment Projections.

Warlick, David. "The New Literacy." Scholastic Administrator. March/April 2005.

Zeller, Jr., Tom. "Measuring Literacy In a World Gone Digital." New York Times 17 Jan 2005.