Technology and Current Reading/Literacy Assessment Strategies

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There are many new tools for assessment that take advantage of advances in technology. Teachers may find some of them useful for improving their classroom practice.

“T"he City School District requires that each teacher give this individual reading test three times a year to each student.” The school’s curriculum coordinator stood alongside a box of assessment materials, demonstrating the test’s administration procedures to some visiting college education majors. “It’s wonderful to be able to have up-to-date information on the students’ reading development. We are able to give each one reading materials that are ‘just right’ in terms of guided reading level. But...it takes a lot of time to give these tests.”

The curriculum coordinator laughed ruefully. “The school reading specialist and I can come in to teach some lessons while the teachers give the tests. But it takes so much more time. Many teachers take personal days off [for the testing]. The district hires a substitute to come in, and the teacher spends the day testing.”

On the one hand, this U.S. school has a wonderful commitment to focused, guided reading activities with text at each student’s instructional level, sustained silent reading at the independent level, and teacher read-alouds at the frustration level. The school recognizes the need for current information about each student’s rapidly changing development. Yet this school’s policy violates a key principle that has been a foundation of reading instruction since Durkin’s (1978) revolutionary work decades ago: Do not replace teaching with testing.

Can current technology help with this dilemma? Certainly many teachers have had bad experiences with poorly considered technology choices that put even more burdens on precious teaching time, with little or no payoff for their students. It is also true that, even under the best conditions, initial startup of any technology-based educational system will be onerous, as teachers learn software operation, work out inevitable bugs, and integrate the new data and their regular instruction (Abbott, Greenwood, Buzhardt, & Tapia, 2006). When properly implemented, however, technology can ease teachers’ assessment burdens and increase efficiency and effectiveness (Roland, 2006).

Researchers and theorists have come to recognize the impact of the fast-changing global economy on our definition of literacy. The study of literacy has become the study of new literacies—the “new skills, strategies and dispositions that are required to successfully...communicate on the Internet (Leu, Kinzer, et al., 2004)” (Castek, Bevans-Mangelson, & Goldstone, 2006, p. 715). Malloy and Gambrell (2006) warned that these new literacies will soon be replaced by even newer ones on our “technological journey to the future” (p. 484).

Our professional literacies undoubtedly share these same fast-changing characteristics, particularly in the realm of assessment. In these days of accountability, test publishers are scrambling to establish their particular devices as technologically superior, and developments are rapid.

The purpose of this article is to look at a variety of ways in which computer and information technologies are being used to address assessment issues. Each type of software is described, with one or more examples. The choice of examples is not meant to be an endorsement of their use but rather to reflect such characteris-
tics as innovativeness, practical value, and recognition among computer-using educators.

Readers should be aware that the technology market changes rapidly and that careful consideration of new products is always necessary. Ongoing developments can be monitored in technology education journals such as *Learning and Leading With Technology* and in technology-related columns in journals from the professional field of reading and literacy. When available, URLs and publisher addresses are provided to allow readers interested in continuing their explorations to access information, demonstrations, and sample software.

**Online Access to Student Scores**

Some computer technologies have been a part of standard school practice for many decades. Almost everyone is familiar with the process of administering paper-and-pencil standardized tests that are then mailed to the test publisher for scanning and scoring.

The U.S. Stanford-10 general achievement test (Harcourt Assessment, www.HarcourtAssessment.com) adds a twist to this common process, using the Internet. The publisher provides online access to scores for administrators. A software application allows scores to be disaggregated in a variety of ways in order to create reports that are customized to the school’s needs. An information brochure can be downloaded at www.harcourtassessment.com/hai/images/pdf/sdrtsdmtfactsheet.pdf. A brochure titled *SDRT/SDMT Online Brochure* (98909-902) can be obtained from the publisher (in the United States, call 1-800-211-8378). An advertisement and description of the Stanford-10 is available at www.harcourtassessment.com/haiweb/cultures/en-us/dotcom/harcourtresults/subpages/stanford+10+results+online.htm. This website has links to an online demonstration and to a Demo Guide PDF file that provides a printable version of the online demonstration.

Although the Stanford-10 publisher provides scores online, other publishers have taken a different route—that of providing online software for schools to input their own scores. The Developmental Reading Assessment (DRA; Pearson Learning) is a package of running record assessments. The DRA kits consist of short, leveled picture books and sheets for documenting the results of running records. A tour and demonstration of the Developmental Reading Assessment online management system is available at www.pearsonlearning.com/index.cfm?a=37.

Pearson Learning has provided an online management system for teachers and schools using the DRA. Teachers input student names. Then, as the running records are administered over the course of the elementary school years, they add the students’ reading times (as a measure of fluency), miscues, and comprehension scores. Teacher observations and comments can also be added online. The information can be made available in individual student reports and in a variety of class and school reports.

Renaissance Learning has a similar online system, Renaissance Place (www.renlearn.com/renaissanceplace), for organizing and tracking student development. This management system incorporates three levels of assessment information (see Figure 1), all of which must be manually entered by teachers or clerical staff. The first level includes ongoing monitoring of results from the popular Renaissance product Accelerated Reader, which is designed to encourage recreational reading. A second level has placement testing information from another Renaissance product, the STAR Reading test. The third level provides for input of additional formal assessment information that the school may have available. Demonstration materials for STAR Reading are available at www.renlearn.com/starreading/default.htm. Information about STAR Early Literacy can be found at www.renlearn.com/starearlyliteracy/default.htm.

**Figure 1**

Renaissance Place Tiers of Learning Assessment

| Tier 3: Annual High Stakes Tests |
| Tier 2: Periodic Progress Monitoring |
| Tier 1: Daily Progress Monitoring |
The Phonological Awareness Literary Screening (PALS) was developed by the Curry School of Education at the University of Virginia (pals.virginia.edu). This early literacy assessment is widely used in Virginia and also offers an online management system. Partridge, Invernizzi, Meier, and Sullivan (2003) offered a positive evaluation report on its use and details on the types of reports that schools are able to generate using the management system.

Computer-Based Norms Reporting

A wide variety of standardized tests now include scoring software for use on personal computers. Students take the tests using traditional paper-and-pencil methods. Then, teachers hand score the answer sheets and input raw scores for all subtests into the scoring software. The software provides derived scores and usually can be used to create individual and group reports that are customized for the school’s needs.

Pearson Assessments has recently acquired American Guidance Service. Pearson’s ASSIST software is available for many of that publisher’s tests, including the Kaufman Test of Educational Achievement-II, Peabody Individual Achievement Test-Revised, Woodcock Reading Mastery Test-Revised, and Peabody Picture Vocabulary Test-III (www.agsnet.com). ASSIST can provide group reports organized by score, school, grade, or age. If students have received multiple administrations of the test over a period of time, the software provides a graph showing changes.

School-Based Computer Scanning

Most formal assessment publishers continue to offer scanning of student answer sheets at a central location, as they have for many years. Although software that provides for computer scoring of reports has become widely available, scanning on personal computers continues to be more limited. Computer scanning software allows schools to process answer sheets at their own sites, using a special peripheral test scanner connected to a personal computer. Tasa International, the publisher of the Degrees of Reading Power (DRP) tests, makes available its SER+II software to scan DRP answer sheets and generate computer scoring reports (www.tasa.literacy.com).

Computer-Based Assessment Administration

Computer-based assessment software is available for installation and administration on school computers. STAR Reading is a popular example (see Figure 2). Its publisher, Renaissance Learning (www.renlearn.com), has taken advantage of the popularity of its Accelerated Reader software to help market STAR Reading, as well as its test for younger students in preschool through third grade, STAR Early Literacy. The latter test makes extensive use of voice synthesis so that early readers understand what is required of them.

Although the general format of both tests is traditional and would be familiar to all educators, a key difference from most other tests is that these make use of a computer technology called Computer Adaptive Testing (CAT). CAT tremendously shortens the time needed to take the test (about 10 minutes for each test). In CAT, a student is administered a sequence of questions on the computer that is individually tailored to quickly zero in on the student’s ability level. If initial questions are answered correctly, the computer recognizes this and moves on to more challenging questions. If the questions are answered incorrectly, easier questions are administered. This process continues until the child’s actual ability level is targeted. Such a timesaving routine, which eliminates administration of unnecessarily easy or difficult questions, is impossible for paper-and-pencil tests.

The Scholastic Reading Inventory (SRI; teacher.scholastic.com/products/sri) is a normed test that is also available for administration on school comput-
ers (see Figure 3). An information packet that includes a CD-ROM is available to be ordered from the SRI website.

Riverside Publishing’s Basic Early Assessment of Reading (BEAR; www.riverpub.com/products/bear/index.html) is a normed test that addresses early literacy subskills such as concepts about print, phonological and phonemic awareness, phonics, and vocabulary. The test is available in traditional print format, but its computer edition provides software-based administration of the test. All components of the print edition are included except for the oral reading fluency subsection, which can be purchased separately for one-on-one administration by a teacher.

Web-Based Assessment

Some publishers now make available tests that can be administered through the Internet. Harcourt Assessment (www.HarcourtAssessment.com), for example, publishes the Stanford Diagnostic Reading Test (SDRT). The traditional SDRT is a normed, standardized, paper-and-pencil achievement test. Answer sheets are usually hand scored by teachers or sent to the publisher for scoring and reporting.

The fourth edition of the SDRT provides the option of administering the test online for levels from Red (designed for grades 1.5 to 2.5) through Blue (grades 9 to 13). Students first complete an online practice test to become familiar with the format. Then the test questions are downloaded to the student’s personal computer for completion offline. Once finished, the student simply clicks on a “Submit” button to reestablish the Web link. Answers are immediately scored and teachers have access to the results. In addition to the full-length online SDRT, which is similar to the printed version, Harcourt provides a shorter online screening test version.

Web-based assessments are not likely to replace traditional paper-and-pencil schoolwide assessments anytime soon. Having 300 students sit down at their desks with paper-based tests is much more efficient than trying to schedule that number of students for the computer lab. The convenience of the Web-based format for individual administrations, however, seems clear. New students moving into a school district midyear can be quickly assessed, using the same instrument as used in the schoolwide assessment.

Computer-Based Observational Record Keeping

Observational record keeping is a key part of classroom assessment. Several publishers have computer-based systems for maintaining observational records. One of the three major components of Work Sampling Online (Pearson Learning; described in more detail in the next section) is a record-keeping system in which teachers record their observations about student learning (see Figure 4). At designated times, usually
three times a school year, teachers fill out observation-
al checklists online for each student in their classes. The results of these checklists can be compared with
developmental benchmarks typically expected of stu-
dents at each grade in individual, class, and school
reports.

Computer-Based Portfolio
Systems
Interest in portfolio assessment has declined since the
days of the whole language movement and its empha-
sis on authentic assessment. Some publishers, how-
ever, have provided systems for maintaining student
portfolios in digital formats.

Pearson Education’s Work Sampling Online (www.
worksamplingonline.com) is one such portfolio sys-
tem. It is designed for preschool through fifth grade,
and it allows portfolio development in several school-
related areas, including reading and literacy. There
are three main components. The Developmental
Guidelines and Checklists described in the previous
section allow for ongoing monitoring of individual,
class, and school development in literacy. There is
space for teacher comments, as well. The portfolios al-
low for storage of a limited number of scanned stu-
dent products, such as writing samples (see Figure 5).

Reports based on the checklists and portfolios inform
teachers, parents, and administrators about student
progress. A demonstration tour of the Work Sampling
system as a whole is at dev.pearsonearlylearning.
com/quickTour/proto4k.html

Recreational Reading
Management
Accelerated Reader was the first major recreational
reading management system to gain popularity across
the United States (www.renlearn.com/ar). These man-
agement systems are essentially banks of test ques-
tions based on children’s literature. Students can
choose to read books from an extensive reading list.
When finished reading, they sign onto the manage-
ment system and are administered a short quiz. If they
fail to meet the criterion grade, they can continue to
take different versions of the quiz. Each student’s per-
formance is recorded in a database and can be ac-
cessed by the teacher to monitor achievement.

Recreational reading management systems are
frowned upon by some educators (for example,
Alvermann, 2004) who insist on more authentic ap-
proaches to encouraging and monitoring independent
reading, such as literature circles, reading
workshops, and writing in response to reading.
Pavonetti, Brimmer, and Cipielewski (2002) found
that long-term effects of Accelerated Reader on moti-
vation to read might not be particularly large. Mallette,
Henk, and Melnick (2004) similarly found no improve-
ment of attitudes toward recreational reading with use
of Accelerated Reader. Topping’s (1999) earlier sur-
vey of 12 studies, however, found all but one to show
that Accelerated Reader had positive effects, but he
noted that the studies were not rigorously designed.
He also warned that “appropriate and sufficient high-
quality training and support for teachers are needed
if implementation integrity is to be sustained at the lev-
el necessary to raise student attainment” (Summary
and Conclusions page). In other words, recreational
reading management systems may not be effective in
achieving school goals if they are simply add-ons that
are not integrated with the classroom curriculum.

The major advantage of these systems is their ease
of management, freeing teachers to spend more time
on other aspects of teaching and simultaneously hold-
ing students accountable for reading. The manage-
ment systems provide teachers with a clear picture of
how many books each student is reading, the difficul-
ty level of the books, and the quality of student performance on the quizzes.

Scholastic’s Reading Counts is that publishing company’s version of recreational reading management software, an attempt to break into this lucrative market (teacher.scholastic.com/products/reading counts). Reading Counts offers some motivational giveaways that tie into the popular Scholastic Book Clubs. Another interesting twist is the auto alert feature, by which teachers are immediately informed at sign-in about particular students who are either exceeding or failing to meet expected criteria.

Both Accelerated Reader and Reading Counts offer extensive book lists. Reading Counts, for example, provides tests for up to 30,000 books. A school can expect to pay thousands of dollars for complete installation of the software, however.

Tasa International’s DRP (Degrees of Reading Power) Booklink provides computer-based assistance for recreational reading at a less involved level (www.tasaliteracy.com). This program is designed to identify appropriate books for students with particular interests. A user simply identifies a topic of interest and a target reading difficulty level. The software then provides a topical list of books at that reading level. In Booklink’s case, the difficulty levels are reported in Tasa’s proprietary DRP levels, rather than in traditional grade-level readabilities or in a leveled books format. Booklink helps organize instruction, but it does not provide any assessments.

Book Adventure is a free website that provides quizzes for 6,000 children’s books (www.book adventure.org). The site is sponsored by Sylvan Learning. A variety of resources useful for teachers and parents are offered at the site.

Websites Providing Assessment Resources

Teachers in schools and universities have often invested considerable personal time and effort in developing assessment tools. Some of these, of course, may be offered for sale through a publishing company. But some have chosen to pass up any opportunity for financial reimbursement and have published their tools on the Internet.

Rubric-based assessment has gained in popularity in recent years. A wide variety of sample rubrics are available on the Internet. Perhaps the most efficient means of finding an appropriate rubric to fit specific needs is to use a search engine, using descriptors such as rubric AND summarizing or rubric AND kindergarten AND oral language. Several websites provide extensive resources about rubrics, including the following:

- Kathy Schrock’s Guide for Educators: Assessment Rubrics at school.discovery.com/schrockguide/ assess.html#rubrics
- RubiStar at rubistar.4teachers.org/index.php
- Teacher Tools Rubrics Websites at home.nyc.rr.com/teachtools/Rubrics%20Websites.html
- Teachnology.com’s Teacher Rubric Makers at www.teach-nology.com/web_tools/rubrics/

Robert Calfee at the University of California at Riverside has created a series of informal reading assessment devices called the Interactive Reading Assessment System. The skills assessed include letter knowledge, letter–sound correspondence, word reading, metaphonics, decoding, spelling, oral reading of connected text, reading comprehension, vocabulary, and oral comprehension. The tests are available in downloadable PDF format at www.education.ucr.edu/research_and_projects/read_plus/assessment/iras-r.htm.

One of the informal tests at Calfee’s website is The Tile Test. This test of early literacy, which was described in detail in Norman and Calfee (2004), includes letter identification and metalinguistic and phonics assessments using letter tiles and word cards.

DIBELS, Dynamic Indicators of Basic Early Literacy (dibels.uoregon.edu), is a very popular set of short assessments administered to children three or four times a year. They are available free at the DIBELS website, and an online management system is available for a fee. The assessments are designed for preschoolers through third grade and include Initial Sounds, Letter Naming, Phoneme Segmentation, Nonsense Words, Retelling, Word Use, and Oral Reading Fluency. DIBELS’s popularity has made it a target for critics of the renewed interest in formal ongoing literacy assessment programs required by state and federal policies, most notably in Goodman’s book The Truth About DIBELS (2006). It’s less a critique of the DIBELS assessments themselves and more a justified expression of concern that schools are interpreting governmental policies to restrict the scope and richness of their reading and literacy instruction. In
too many school districts, “teaching to the test” plays far too large a role in determining curriculum content (Manning, Chumley, & Underbakke, 2006).

Assessment in education is an ever-changing and controversial field, and many educators have strong opinions on the topic. Others have practical information that they would like to share. Websites such as those I’ve mentioned in this article are valuable sources of information, but in the past few years other Internet technologies have become available as well, including weblogs (or blogs), videos in streaming video format or for download, webcasts, and podcasts.

Multimedia information can be distributed over the Internet in several ways. An audio or video file might be downloaded from a website to a personal computer or mobile video device, for example, and then played at the user’s convenience. Streaming audio and video function similarly, except that the user views the video as it is being delivered to his or her personal computer or other device.

The term webcast is often used to refer to sending live audio or video information over the Internet to many listeners or viewers at the same time, though the term is also sometimes used more generally to include streaming and downloading. Podcasts, a term developed by combining the words iPod and broadcasts, are multimedia files designed to be automatically downloaded to personal computers or other devices. A user would, for example, use Web feed reader software to specify that particular websites be regularly examined for new multimedia content. The software then automatically downloads any new files for later listening or viewing.

New Technology Can Be Worth the Investment

Too often, we limit our efforts to improve reading and literacy instruction to simply substituting one new “hot” strategy for an older one, or a new assessment device for an existing one that served much the same purpose. Such changes at best yield only incremental improvements in the quality of our service to students.

Use of technology in schools can be costly and time consuming, eating up limited resources. At its best, however, when appropriately considered and planned, new technology can scaffold teaching and learning so as to bring about significant change in both efficiency and effectiveness, and even to redefine ways in which we use and make meaning of text (Jacobs, 2006). New assessment technologies can improve teachers’ abilities to encourage more time-on-task in reading and writing. They can provide teachers with current information about their students. New technologies can help teachers organize and interpret data in ways that directly affect the teaching and learning processes. Finally, and perhaps most important, they can provide the flexibility that is key for meeting the needs of the diverse populations in U.S. schools.

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References
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