

21st-Century Literacies

A Policy Research Brief produced by the National Council of Teachers of English

IN THIS ISSUE

- **A Changing World for Literacy Teachers**
- **Common Myths about 21st-Century Literacies**
- **Key Terms**
- **Research-Based Recommendations for Effective Instruction in 21st-Century Literacies**



A Changing World for Literacy Teachers

Global economies, new technologies, and exponential growth in information are transforming our society. Today's employees engage with a technology-driven, diverse, and quickly changing "flat world."¹ English/language arts teachers need to prepare students for this world with problem solving, collaboration, and analysis—as well as skills with word processing, hyper-text, LCDs, Web cams, digital streaming podcasts, smartboards, and social networking software—central to individual and community success.² New literacies are already becoming part of the educational landscape, as the following "fast facts" suggest:

- In 2011, the writing test of the National Assessment of Educational Progress will require 8th and 11th graders to compose on computers; 4th graders will compose at the keyboard in 2019.
- Thirty-three states have adopted National Educational Technology Standards for K–12 students.
- Approximately 50 percent of four-year colleges and 30 percent of community colleges use electronic course management tools.
- The United States ranks 15th worldwide in the percentage of households subscribed to a broadband Internet service.

NCTE National Council of
Teachers of English

This publication of the James R. Squire Office of Policy Research offers updates on research with implications for policy decisions that affect teaching and learning. Each issue addresses a different topic. To download this policy brief, visit the NCTE website at www.ncte.org and search for "21st-Century Literacies." For more on this topic, search for "Research Clips on 21st-Century Literacy."

Continued on page 14

As new technologies shape literacies, they bring opportunities for teachers at all levels to foster reading and writing in more diverse and participatory contexts.

- Over 80 percent of kindergarteners use computers, and over 50 percent of children under age 9 use the Internet.³
- At least 61 virtual colleges/universities (VCUs) currently educate students in the U.S.
- In 2006, 158.6 billion text messages were sent in the U.S.
- Over 106 million individuals are registered on MySpace.
- There are at least 91 million Google searches per day.
- The European Institute for E-Learning aims to enhance Europe's position in the knowledge economy by achieving the goal "e-Portfolio for all" by 2010.

As new technologies shape literacies, they bring opportunities for teachers at all levels to foster reading and writing



in more diverse and participatory contexts. Sites like literature's Voice of the Shuttle (<http://vos.ucsb.edu>), online fanfiction (<http://www.fanfiction.net>), and the Internet Public Library for children (<http://www.ipl.org/youth>) expand both the range of available texts and the social dimension of literacy. Research on electronic reading workshops shows that they contribute to the emergence of new literacies.⁴

Research also shows that digital technology enhances writing and interaction in several ways. K–12 students who write with computers produce compositions of greater length and higher quality and are more engaged with and motivated toward writing than their peers.⁵ College students who keep e-portfolios have a higher rate of academic achievement and a higher overall retention rate than their peers. They also demonstrate greater capacity for metacognition, reflection, and audience awareness.⁶ Both typical and atypical students who receive online response to writing revise better than those participating in traditional collaboration.⁷

Common Myths about 21st-Century Literacies

Myth: 21st-century literacy is about technology only.

Reality: Although technology is important to literacy in the new century, other dimensions of learning are essential. Studies of workforce readiness show that employers rate written and oral communication skills very highly, and collaboration, work ethic, critical thinking, and leadership all rank higher than proficiency in information technology. The Partnership for 21st-Century Skills (<http://www.21stcenturyskills.org>) advocates for core academic subjects, learning and innovation skill, and life and career skills, along with technology skills. Even a standardized measure like the iSkills Information and Communication Technology Literacy Test gives significant attention to organization, evaluation, critical thinking, and problem solving.⁸

Myth: The digital divide is closed because schools provide computer and Internet access.

Reality: The digital divide—the gap in access to and quality of technology—still exists. In 2005, nearly 100 percent of public schools in the United States had access to the Internet, but student-to-computer ratios and access to

Although technology is important to literacy in the new century, other dimensions of learning are essential.

broadband service vary widely across socio-economic levels. Furthermore, available computers are often not used effectively or fully; the national average of students' school use of computers is 12 minutes per week.⁹

Myth: Teachers who use technology in their personal lives will use it in their classes.

Reality: Research shows that teachers who use word processing, spreadsheets, presentation software, and Internet browsers at home do not bring that knowledge into the classroom. Furthermore, two-thirds of all teachers report feeling under-prepared to use technology in teaching, even if they use computers to plan lessons, access model lesson plans, and create activities.¹⁰

Myth: Teachers need to be experts in technology in order to use it effectively in instruction.

Reality: Research shows that effective teachers collaborate with students to understand the information landscape and

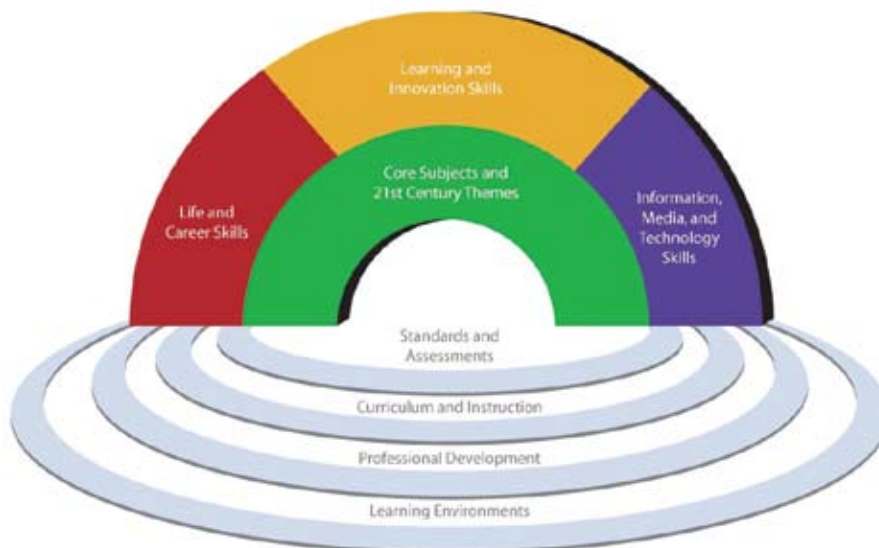
think about its use. Since success with technology depends largely upon critical thinking and reflection, even teachers with relatively little technological skill can provide useful instruction.¹¹

Myth: Automatic Essay Scoring (AES) systems will soon replace human readers of student writing.

Reality: Systems like ETS's Criterion, Pearson's Intelligent Essay Assessor (IEA), the College Board's ACCUPLACER and WritePlacerPlus, and ACT's Compass are all being used to provide immediate feedback or evaluate students' writing. However, the feedback they provide is generic and relatively limited, and these systems are confined to a narrow range of modes and topics.¹²

Since success with technology depends largely upon critical thinking and reflection, even teachers with relatively little technological skill can provide useful instruction.

**Framework for 21st-Century Learning
21st-Century Student Outcomes and Support Systems**



©The Partnership for 21st-Century Skills (www.21stcenturyskills.org)

Continued on page 16

Key Terms

Affinity Groups: Groups or communities that unite individuals with common interests. Electronic spaces extend the range of possibilities for such groups.¹³

Blogs: Web logs (“blogs” for short) are interactive websites, often open to the public, that serve as journals and can include Web links and photographs as well as audio and video elements. Some 60 million blogs have been published on the Internet over the past five years.¹⁴

E-portfolio: Student work that is generated, selected, organized, stored, and revised digitally. Often electronic portfolios are accessible to multiple audiences, and some models can be moved from one site to another easily. E-portfolios can document the process of learning, promote integrative thinking, display polished work, and/or provide a space for reflecting on learning.¹⁵

Hypertext: Electronic texts that provide multiple links, allowing users to trace ideas in immediate and idiosyncratic directions. Hypermedia adds sound, video, animation, and/or virtual reality environments to the user’s choices.¹⁶

ICT (Information and Communication Technology): ICT refers to the use of computers and computer software to convert, store, process, transmit, and retrieve information.

Podcasts: Digitalized audio files that are stored on the Internet and downloaded to listeners’ computers or MP3 players. Although other file formats may be used, audio files are usually saved in the MP3 format. The term “podcast” comes from iPod™, the popular MP3 player.¹⁷

Web 2.0: This term does not refer to an update in the Web’s technical specifications; it refers to a second generation of Web-based communities that demonstrate the participatory literacies students need for the 21st-century. Some examples include:

Myspace (<http://www.Myspace.com>) is a social networking website offering an interactive, user-submitted network of friends, personal profiles, blogs, groups, photos, music, and videos internationally. Students rate professors, discuss books, and connect with high school and college

classmates here. *Myspace* receives nearly 80 percent of visits to online social networking websites; other similar sites include *Facebook* and *Xanga*.¹⁸

Second Life (<http://www.secondlife.com>) is an Internet-based 3-D virtual world. This simulation’s nine million participants use their avatars (digital representations of themselves) to explore, socialize, participate in individual and group activities, and create and trade items (virtual property) and services. Over 160 schools and colleges from all over the world have a presence on *Second Life*, and a number of the 140 colleges and universities represented have distance-learning programs based within it.¹⁹

Semantic Web is an extension of the current Web that puts data into a common format so that instead of humans working with individual search engines (e.g., Google, Ask Jeeves) to locate information, the search engines themselves feed into a single mechanism that provides this searching on its own. Sometimes called Web 3.0, this technology will enable integration of virtually all kinds of information for more efficient and comprehensive retrieval.²⁰

Webkinz (<http://www.webkinz.com>) is an Internet simulation where children learn pet care and other skills.²¹

Wiki refers to software that fosters collaboration and communication online. Wikis enable students to create, comment upon, and revise collaborative projects. One of the most prominent is Wikipedia (<http://www.wikipedia.org>), the online multilingual free-content encyclopedia, which currently has 7.9 million articles in 253 languages.²²

Youtube (<http://www.Youtube.com>) is a popular video sharing website where users can upload, view and share video footage, including movie clips, TV clips, and music videos, as well as amateur content such as student-produced videos.²³

Other tech terms for teachers can be found at the National Education Technology Standards (NETS) website: http://cnets.iste.org/teachers/t_glossary.html#t

E-portfolios can document the process of learning, promote integrative thinking, display polished work, and/or provide a space for reflecting on learning



Research-Based Recommendations for Effective Instruction in 21st-Century Literacies

For teachers . . .

Research shows that effective instruction in 21st-century literacies takes an integrated approach, helping students understand how to access, evaluate, synthesize, and contribute to information. Furthermore, as Web 2.0 demonstrates, participation is key, and effective teachers will find ways to encourage interaction with and among students. Recommendations include:

- Encourage students to reflect regularly about the role of technology in their learning.
 - Create a website and invite students to use it to continue class discussions and bring in outside voices.
 - Give students strategies for evaluating the quality of information they find on the Internet.
 - Be open about your own strengths and limitations with technology and invite students to help you.
 - Explore technologies students are using outside of class and find ways to incorporate them into your teaching.
- Use a wiki to develop a multimodal reader's guide to a class text.
 - Include a broad variety of media and genres in class texts.
 - Ask students to create a podcast to share with an authentic audience.
 - Give students explicit instruction about how to avoid plagiarism in a digital environment.
 - Consult the resources on the Partnership for 21st-Century Skills website at <http://www.21stcenturyskills.org>.

Effective instruction in 21st-century literacies takes an integrated approach, helping students understand how to access, evaluate, synthesize, and contribute to information.

Continued on page 18



For schools and policymakers . . .

Teachers need both intellectual and material support for effective 21st-century literacy instruction. Accordingly, schools need to provide continuing opportunities for professional development as well as up-to-date technologies for use in literacy classrooms.

- Address the digital divide by lowering the number of students per computer and by providing high quality access (broadband speed and multiple locations) to technology and multiple software packages.
- Ensure that students in literacy classes have regular access to technology.
- Provide regular literacy-specific professional development in technology for teachers and administrators at all levels, including higher education.
- Require teacher preparation programs to include training in integrating technology into instruction.
- Protect online learners and ensure their privacy.
- Affirm the importance of literacy teachers in helping students develop technological proficiency.
- Adopt and regularly review standards for instruction in technology.

This report is produced by NCTE's James R. Squire Office of Policy Research, directed by Anne Ruggles Gere with assistance from Laura Aull, Hannah Dickinson, Melinda McBee Orzulak, and Ebony Elizabeth Thomas, all students in the Joint Ph.D. Program in English and Education at the University of Michigan.

Endnotes

- ¹ Friedman, T.L. (2007). *The world is flat: A brief history of the 21st-century*. New York: Picador.
 - ² Kist, W. (2005). *New literacies in action: Teaching and learning in multiple media*. New York: Teachers College Press.
 - ³ Olson, L. (2007). NAEP writing exams going digital in 2011. *Education Week*, 26(27): p. 23.
- International Society for Technology in Education. (2007). National Educational Technology Standards for Students: The Next Generation. Retrieved on August 17, 2007, from <http://www.iste.org/inhouse/nets/cnets/index.html>.
- Green, K.C. (2007). Icons of the Internet. The Campus Computing Project. Retrieved on August 17, 2007, from <http://www.itpb.ucla.edu/documents/documents/Green-Icons-UCLA-Apr07.pdf>.
- European Institute for E-Learning. (2007). Retrieved on August 20, 2007 from www.elearning2006.fi/main.site?action=binary/file&id=6&fid=72.
- Epper, R.M., & Garn, M. (2004). Virtual universities: Real possibilities. *Educause Review*, 39(2): 28-39. Retrieved on August 18, 2007, from <http://www.educause.edu/ir/library/pdf/erm0422.pdf>.
- Lenhardt, A., & Madden, M. (2005). Teen content creators and consumers. Washington, DC: Pew Internet and American Life Project. Retrieved on August 20, 2007, from http://www.pewinternet.org/PPF/r/166/report_display.asp.
- Briggs, T.W. (2007). 15 years after birth, book's not closed on texting. *USA Today*. Retrieved on September 9, 2007, from http://www.usatoday.com/tech/news/2007-09-03-texting-language_N.htm?csp=34.

- National School Board Association. (2007). Creating & connecting: Research and guidelines on online social—and educational—networking. Retrieved on September 12, 2007, from <http://www.nsb.org/site/docs/41400/41340.pdf>.
- Shift Happens. (2007). Retrieved on August 17, 2007, from <http://www.youtube.com/shifthappens>.
- ⁴ Larson, E.L.C. (2007). A case study exploring the “new literacies” during a fifth-grade electronic reading workshop. Retrieved on August 20, 2007, from <http://krex.ksu.edu/dspace/handle/2097/352>.
- Waldman, J.A. (2007). Acknowledging criteria: A look at research and reality of children’s digital libraries. Retrieved on August 20, 2007, from <http://etd.ils.unc.edu:8080/dspace/handle/1901/398?mode=simple>.
- ⁵ Goldberg, A., Russell, M., & Cook, A. (2003). The effect of computers on student writing: A meta-analysis of studies from 1992 to 2002. *Journal of Technology, Learning, and Assessment*, 2(1). Available from <http://www.jtla.org>.
- ⁶ Desmet, C., Griffin, J., Miller, D.C., Balthazor, R., & Cummings, R. (forthcoming). Re-visioning revision with e-Portfolios in the University of Georgia First-year composition program. In D. Cambridge, B. Cambridge, and K. Yancey (Eds.), *Electronic Portfolios 2.0: Emergent Findings and Shared Questions*. Washington, DC: Stylus Publishing.
- Eynon, B. (forthcoming). The LaGuardia ePortfolio. In D. Cambridge, B. Cambridge, and K. Yancey (Eds.), *Electronic Portfolios 2.0: Emergent Findings and Shared Questions*. Washington, DC: Stylus Publishing.
- ⁷ Carmichael, S., & Alden, P. (2006). The advantages of using electronic processes for commenting on and exchanging the written work of students with learning disabilities and/or AD/HD. *Composition Studies*, 34(2): 43-57.
- Goldberg, A., Russell, M., & Cook (2003). The effect of computers on student writing: A meta-analysis of studies from 1992-2000. *Journal of Technology, Learning & Assessment*, 2(1): 1-51.
- Hertz-Lazarowitz, R., & Bar-Natan, I. (2002). Writing development of Arab and Jewish students using cooperative learning (CL) and computer-mediated communication (CMC). *Computers and Education*, 39(1): 19-36.
- Hewett, B. (2000). Characteristics of interactive oral and computer-mediated peer group talk and its influence on revision. *Computers and Composition*, 17(3): 265-288.
- Koehler, M. Yadar, A., & Phillips, M. (2005). What is video good for? Examining how media and story genre intersect. *Journal of Educational Multimedia and Hypermedia*, 14(3): 249-272.
- Lundell, D. (2000). Developing writers, developing professionals: Graduate students bridging theory and practice in basic writing. *Research and Teaching in Developmental Education*, 16(2): 43-53.
- ⁸ Partnership for 21st-Century Skills (2006). Are they really ready to work? Employers’ perspectives on the basic knowledge and applied skills of new entrants to the 21st-Century U.S. workforce. Retrieved on August 12, 2007, from http://www.21stcenturyskills.org/Final_Report_PDF09-29-06.
- Partnership for 21st-Century Skills (2007). Framework for 21st-Century Learning. Retrieved on August 13, 2007, from http://www.21stcenturyskills.org/documents/frameworkflyer_072307.pdf.
- ETS iSkills. (2007). Retrieved on August 12, 2007, from <http://www.ets.org/portal/site/ets/menuitem.435c0b5cc7bd0ae7015d9510c3921509/?vgnnext>.
- ⁹ Wells, J., & Lewis, L. (2006). Fast/Facts: Internet Access in U.S. Public Schools and Classrooms: 1994-2005 (NCES 2007-020). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved on July 30, 2007, from <http://nces.ed.gov/fastfacts/display.asp?id=46Wells>.
- National Telecommunications and Information Administration. (1999). Falling through the Net: Defining the digital divide. Washington, DC: U.S. Department of Commerce. Retrieved on July 18, 2007, from <http://www.ntia.doc.gov/ntiahome/fttn99/appendix.html#e>.
- Norris, C., Sullivan, T., Poirot, J., & Soloway, E. (2003). No access, no use, no impact: Snapshot surveys of educational technology in K-12. *Journal of Research on Computing in Education*, 36(1): 15-28.
- Grunwald Associates (2003). Connected to the future: A report on children’s Internet use from the Corporation for Public Broadcasting. Retrieved on July 18, 2007, from http://www.cpb.org/stations/reports/connected/connected_report.pdf.
- Wells, J., and Lewis, L. (2006). Internet access in U.S. public schools and classrooms: 1994-2005 (NCES 2007-020). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved on August 3, 2007, from <http://nces.ed.gov/pubs2007/2007020.pdf>.
- ¹⁰ Kajder, S. (2005). Not quite teaching for real: Preservice secondary English teachers’ use of technology in the field following completion of an instructional technology methods course. *Journal of Computers in Teacher Education*, 22(1): 15-33.
- Web-based Education Commission (2000). The power of the internet for learning: Moving from promise to practice. Retrieved on August 18, 2007, from <http://www.hpcnet.org/webcommission>.
- ¹¹ Edwards, S., & Bruce, C. (2000). Reflective Internet searching, an action research model. In Ortrun Zuber-Skerrit (Ed). *Action learning, action research and process management: Theory, practice, praxis*. Action Research Unit, Griffith University, 5th World Congress of Action Learning, Action Research and Process Management, University of Ballarat, Victoria, September, pp. 141-152.
- Fitzgerald, M., & Galloway, C. (2001). Helping students use digital libraries effectively. *Teacher Librarian*, 29(1): 8-14.
- ¹² Whithaus, C. (2005). *Teaching and evaluating writing in the age of computers and high-stakes testing*. Mahwah, NJ: Erlbaum.
- ¹³ Keddie, A. (2004). Research with young children: The use of an affinity group approach to explore the social dynamics of peer culture. *British Journal of Sociology of Education*, 25(1): 35-51.

- ¹⁴ Borja, R.R. (2005). 'Blogs' catching on as tool for instruction. *Education Week*, 25(15): 1,17.
- ¹⁵ Heath, M. (2002). Electronic portfolios for reflective self-assessment. *Teacher Librarian*, 30(1): 19.
- Wright, V.H., Stallworth, B.J., & Ray, B. (2002). Challenges of electronic portfolios: Student perceptions and experiences. *Journal of Technology and Teacher Education*, 20(1): 49-61.
- ¹⁶ Bangert-Drowns, R., & Swan, K. (1997). Electronic texts and literacy for the 21st century. *English Update: A Newsletter from the Center on English Learning and Achievement*, 6-8. Retrieved from ERIC Database, August 1, 2007.
- ¹⁷ Siegle, D. (2007). Podcasts and blogs: Learning opportunities on the information highway. *Gifted Child Today*, 30(3): 14-19.
- ¹⁸ "MySpace gains top ranking of US Web sites," Reuters, July 11, 2006. Retrieved on August 9, 2006.
- ¹⁹ Second Life (2007) Education. Retrieved on August 18, 2007, from <http://secondlife.com/businesseducation/education.php>.
- Foster, A.L. (2007) Professor Avatar. *Chronicle of Higher Education*. Retrieved September 17, 2007, from <http://chronicle.com/weekly/v54/i04/04a02401.htm?=&atn>.
- ²⁰ Semantic Web Education and Outreach Interest Group. (2007). W3C semantic web frequently-asked questions. Retrieved on August 13, 2007, from <http://www.w3.org/2001/sw/SW-FAQ#swgoals>.
- ²¹ Waldman, J.L. (2007).
- ²² Borja, R.R. (2006, April). Educators experiment with student-written 'wikis'. *Education Week*, 25(30): 10.
- ²³ "Google closes \$2B YouTube deal," Reuters. Retrieved on November 14, 2006.

©2007 by the National Council of Teachers of English, 1111 W. Kenyon Road, Urbana, Illinois 61801-1096. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, or any information storage and retrieval system, without permission from the copyright holder. Additional copies of this policy brief may be purchased from the National Council of Teachers of English at 1-877-369-6283. A full-text PDF of this document may be downloaded free for personal, non-commercial use through the NCTE web site: <http://www.ncte.org> (requires Adobe Acrobat Reader).

Pathways for Advancing Adolescent Literacy

The National Council of Teachers of English can help with your professional development.



Pathways

Teachers across the nation are being challenged with questions like these . . . Sound familiar?

- How can we support students as readers and writers while teaching challenging content?
- Many schools are trying to address issues around the achievement gap. We have identified student groups that are not achieving at targeted levels. What do we do next?
- We hear so much about students not being motivated. Is there really anything we can do about this?
- With the current emphasis on testing, how do we support students without compromising what we know constitutes good teaching?
- What does it mean to be literate in the 21st century, and what are the implications for our teaching and student learning?

Call 1.800.369.6283, e-mail pathways@ncte.org or visit us online at www.ncte.org/profdev

NCTE