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Using Technology to Foster Learning for a New Century *by Nancy Frey*

Peer over the shoulder of an elementary-aged child who is working on a computer and prepare to be amazed and a little intimidated. The children in today's classrooms have never known a time when the Internet did not exist and have been raised in an environment where information is just as likely to be presented digitally as it is in print. When confronted with an interesting question, they are as likely to turn to a computer, or other device with a Web browser, as they are to look in a book. This shift in learning is not confined to school-aged children. Increasingly, teachers of these same students have themselves experienced curriculum development as a process that occurs within digital spaces.

Professional organizations have united in their calls for a 21st century approach to education that broadens our approach to teaching, learning, and literacy. The International Reading Association in 2009 called for literacy curriculum that emphasizes use of print and digital technologies in learning, and further stated "students have the right to… teachers who use ICTs (information and communication technologies) skillfully for teaching and learning effectively" (IRA, 2009). The Partnership for 21st Century Learning Skills, a consortium of education and business organizations, states that the 21st century content must include "global awareness, financial, economic, business, and entrepreneurial literacy, civic literacy, and health and wellness awareness" (Partnership for 21st Century Learning Skills, 2009). The digital divide still exists, and there is enormous disparity in access to technology in homes, classrooms, and communities. A survey by the Kaiser Family Foundation reported that schools play a key role in providing access to those students who lack access to technology in their homes and communities (Rideout, Foehr & Roberts, 2010).

However, the development of 21st century learners who are also learning to be literate is complex. Hobbs (2010), in her testimony to the United States Congress, noted that there are three kinds of possible risks: *content risks* that expose students to harmful material; *contact risks* that may result in online harassment or bullying; and *conduct risks* that include misrepresentation and misinformation. The troubling nature of access to 21st century learning experiences is confounded by access to hardware that is connected to the Internet.

According to the Pew Internet and American Life Project, access to broadband is significantly lower in poorer households, among Hispanics, and in homes where English learners live, and that the rate of access has declined in the last several years among this population due to cost (2008).

The fact is that preparation of students for learning in a new century means that the curriculum they use must focus on building the types of critical literacy needed for global communication. It presents a unique challenge for elementary educators who need to balance the development of the kinds of skills needed for becoming digitally literate with the very real concerns about shielding young children from risk.

Reach for Reading is designed to build students' capacity for learning with technology, and to support teachers' efforts in utilizing technology in a safe environment. In addition, the curriculum design of the program accentuates the content knowledge needed by 21st century learners.

Literacy 2.0: learning in the 21st century

Literacy and learning in the 21st century is shifting from an emphasis on the tools (e.g., computers, smartphones, podcasts, networks) to processes. In other words, we know that the tools teachers and students use will continue to change at breathtaking speed. In fact, it is likely that by the time you read this white paper, there will be new tools that did not exist when it was written. Instead, educators understand that the focus needs to shift to the processes used by learners when utilizing technologies. All learners need the following technology literacy skills (Frey, Fisher, & Gonzalez, 2010). Students must be able to

- search and find information
- use information
- create information
- share information.

Reach for Reading is designed to promote searching for information across both print-based and digital texts through online reading experiences focused on topics and issues that impact the social, biological, and physical world. Students view video clips to build their background knowledge and listen to both the teacher and others to build their language skills. They use information from printed texts and digital texts to formulate answers from an inquiry-based curriculum. The Digital Library provides a media-rich search resource and access to National Geographic texts, videos, and images is available online.
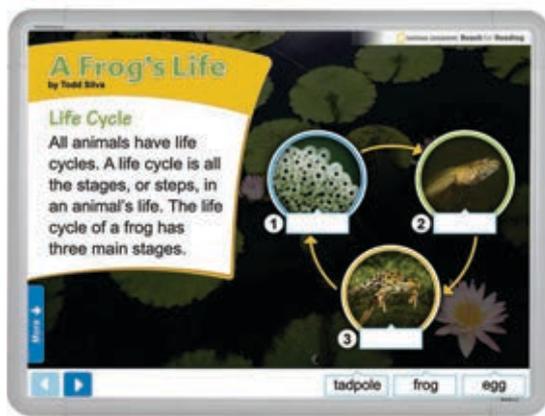
▲ In addition to traditional printed texts in anthologies, Big Books, and trade books, interactive texts are designed for whole-class reading.

Each day, students create information through writing. Importantly, writing genres include those needed for digital communication, such as writing emails and blogs. Many of the writing projects utilize Magazine Maker which focuses students on using technology to produce writing. The digital nature of these resources brings the most current information about the world to the classroom. As always, students are consistently challenged to be discriminating consumers of information.

◀ Students create writing projects using the Magazine Maker.

MAGAZINE MAKER

## Social learning in the 21st century

Noted literacy researcher Paul Gee (2007) states that learning is socially constructed between people and requires them to probe, hypothesize, reprobe, and rethink and that this occurs in both face-to-face and digital environments. The Web 2.0 revolution has made digital spaces interactive, and people expect to be able to dialogue, confer, and debate on any topic of interest. Whether in a classroom or a digital environment, students need the skills to ask questions, form opinions, ask more questions, and draw conclusions. Therefore, a curriculum designed to prepare 21st century learners must include ample opportunities for students to converse with their peers, ask questions, disagree, and formulate their own opinions.

In *Reach for Reading*, communication is located at the heart of the program. Students engage daily in verbal and written discourse about ideas and information that impact their local communities and the world at large. Rest assured that these environments are constructed to reduce the content, contact, and conduct risks that might otherwise lead to restriction of such experiences due to these concerns.

Reading and writing in the 21st century

Leu et al. (2009) state that the "self-directed text construction" of online reading experiences represents a shift from traditional print-based literacy. Students in an online environment move freely between texts to form understandings. Students need ample experiences with moving among a group of texts in order to develop the ability to synthesize information. Therefore, each unit in *Reach for Reading* is organized around a Big Question that prompts students to move among a set of informational and narrative texts to construct understanding.

The Big Questions are designed to defy easy answers, and learners are prompted to use both their background knowledge and what they have learned from their readings to draw conclusions and formulate answers. Research activities in the program include traditional print-based research and online research. This organization encourages students to engage in the kinds of nonlinear multi-text explorations needed when reading and researching online.
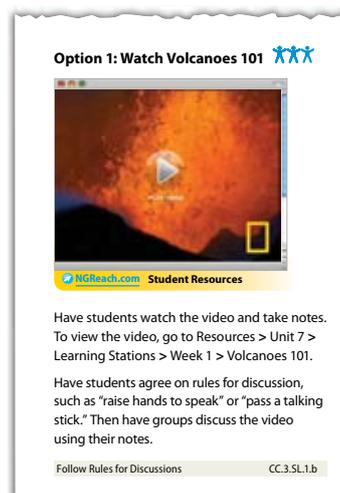
◀ Web research activities help students use synthesis skills using printed resources in the program and text and media resources online.

Communication in the 21st century

Both on- and offline experiences are necessary for students to become thoroughly literate in the 21st century. *Reach for Reading* emphasizes the communication and collaboration skills necessary for students to engage in these practices in both face-to-face and digital environments. In particular, the language frames present in every lesson cause students to focus on both the academic language and academic vocabulary needed in verbal and written communication. As Leu and colleagues (2009) note, "[o]nline reading and writing are so closely connected it is not possible to separate them; we read online as authors and write online as readers" (p. 266). The ability to do so requires that learners are immersed in the rich oral and written dialogue with others that is critical for online learning.
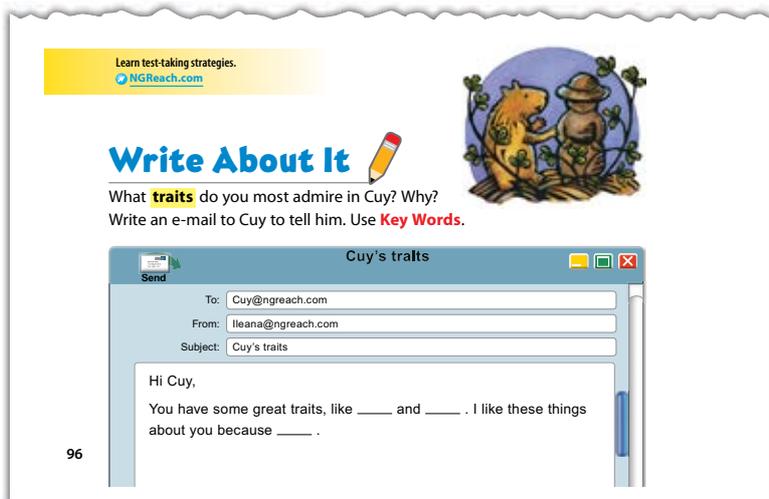
Learn test-taking strategies.
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Write About It

What **traits** do you most admire in Cuy? Why? Write an e-mail to Cuy to tell him. Use **Key Words**.

Cuy's traits

Send

To: Cuy@ngreach.com
From: Ileana@ngreach.com
Subject: Cuy's traits

Hi Cuy,
You have some great traits, like _____ and _____ . I like these things about you because _____ .

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Let's not forget literacy learning!

Reading, writing, and communicating in digital environments is essential for learners in a new century, but let's not forget that our primary job is to induct children into the world of literacy. Therefore, the resources available to the teachers of these students must be similarly cutting edge. Because the *Reach for Reading* program features both print and digital tools, teachers are able to draw from a rich catalog of materials that would otherwise be prohibitively large to store in a classroom. These include instructional support tools such as online letter cards that can be manipulated to form words for use in phonics instruction, vocabulary cards that bring meaning to life when providing reading comprehension instruction, and graphic organizers that make it easy to show students how information is sequenced during writing instruction.

Even better, digital resources make it even easier to provide the necessary alternative materials needed for Tier 2 Response to Intervention programs to supplement quality core instruction. In the past, students who struggled to read and write often did so because their teachers were not able to supply them with enough repetition and practice of skills. However, the digital resources make it possible to provide struggling students with meaningful reteaching and practice opportunities to accelerate their progress.

◄ Digital resources like phonics games, vocabulary games, and the Comprehension Coach provide options for additional practice.

Conclusion

It is imperative that we prepare students for their future as members of a global community where information is shared, produced, and understood across space and people. It is clear that the challenge is great, especially because the past decades have taught us that we are not able to predict the tools they will be using as adults. Rather, our best approach is to ensure that students know how to communicate and collaborate with one another in both face-to-face and digital environments. They must be provided with daily opportunities to read, write, speak, listen, and view using many kinds of visual and written texts. Students must become increasingly comfortable searching for information, storing it, sharing it, producing it, and presenting it to a variety of audiences. Learners who are able to do these things are well prepared for a new century.