



It's Time to Tap in to Technology

SUMMARY

The use of technology to support and develop literacy skills at the middle level is no longer an option, it's a requirement for student success in the 21st century. In this article, the authors outline some of the technology available and provide strategies and resources for immediate use at the middle level.

Often, middle-level teachers stand at the front of the classroom and present a literature lesson by asking students to read specific parts of the text and then requesting that they answer several questions that are written on the blackboard. Students copy the notes into their notebooks. The format of the lesson is usually the same each day and students are expected to regurgitate correct answers throughout the year. This passive lesson could be more engaging and motivating through interactivity available via technology. The use of technology to support and develop literacy skills in our classes is no longer an option, but is a requirement for student success in the 21st century.

Recently, researchers have claimed that nearly 20 percent of middle-level students experience problems when learning to read. (Combs, 2003; Moats, 1999) Therefore, teachers must embrace the limitless opportunities to creatively utilize technologies to teach reading, writing, listening, and speaking skills, so that all children can be successful and enthusiastic literacy learners. Developing strategies for increasing the use of technology within the curriculum as it supports literacy-based teaching and engaging learning experiences enables students and teachers at all grade levels to creatively motivate students toward success in literacy development.

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Rationale

Literacy practices are rapidly changing from print-based and linear to multimodal and digital (Flint, 2008). Computers offer unique instructional capabilities for literacy learning and are a functional necessity that should be used concomitantly with each other. The two are synergetic in that each enhances and complements the other's strength to teach a child to become literate. In order to successfully prepare students for the workplace and to prepare students in the future to be productive members of society, technology is used to revitalize reading instruction and make reading more relevant to the lives of students immersed in the new technologies. The use of the Internet is the way today's students engage in learning, both in and out of school, by looking for information, blogging, connecting globally and crafting class presentations that reflect multimedia. For teachers, expanding these opportunities is critical (McCloskey, 2006).

Technology needs to be infused into the literacy curriculum because technology supports authentic reading and writing activities by allowing

students to research and problem-solve with a multitude of current resources and a variety of services. Computers are creating new, exciting opportunities for collaborations with peers from the same school and from across the world, simultaneously and instantly (Hartley, 2001; Azevedo, 2005). Technology for literacy learning uses multisensory, motivational, social, and interactive tools that immerse students in literacy-based interactions that are dynamic and filled with infinite opportunities for learning (Ko & Rossin, 2004). The use of technology enhances student motivation and fosters self-discipline, which has been linked to academic achievement of eighth-graders in an inner city charter school (Duckworth & Seligman, 2005).

Supporting Reading Skills with Computers

At the middle level, many parents and teachers feel that students are too old to be read to by the teacher. On the contrary, fluent, modeled reading helps students recognize the proper expression and speed text should be read with. During read alouds and

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paired reading, students are exposed to vocabulary that may be beyond their independent reading level in order to improve their own literacy skills. This is the time when e-books can be used to encourage alliterate, reluctant readers to become involved in a story and to reread, at their own pace, selections of the reading. Teachers and parents can visit the Wired for Youth Center at www.wiredforyouth.com/books/index.cfm?booklist=audio where students can read books of high interest with teen themes. This resource is also important because many schools do not have enough financial resources to purchase books for their students.

The following Internet sites and activities can be used without cost to the student or the school, thus expanding the classroom library connection. Free e-books can be found at the BartlebyWeb site at www.bartleby.com. Audiobooks can be especially useful for students who do not speak English as a first language. Students can access thousands of free texts in more than 50 languages that they can download to their computer. Other sites that offer free audio resources with adolescent themes are www.audiobooksforfree.com/screen_main.asp, www.Ereader.com, and the Digital Book Index, www.digitalbookindex.org. Students can complete a listening guide that

assesses their comprehension by filling in a chart outlining story elements or by completing a graphic organizer.

Software and Other Media

Electronic texts are not fixed in print but can be updated by the publisher or interactively modified depending on student responses on the classroom computer. Multimedia software is available in all content areas. Examples are “Afternoon” for children’s literature, “Multimedia Math” for a language-based math program, and “Chemedia” for chemistry. Many programs and Internet sites include a feature that allows dialogue to be read or performed expressively by professional voice actors, making the listening process more enjoyable than just electronic voices.

Use of computer-based educational software leads to questions that teachers need to ask themselves about the hardware capabilities of the computers at their school. Will the delivery system be a single computer or computers attached to a local area network, or the Internet itself? Is the speed or the memory capability of the network sufficient to run the software or multimedia that the teacher selects? When choosing software, does the program offer technical assistance, future updates, upgrades and licensing agreements? In what ways can use of the software enhance teacher pedagogy or student learning?

Today's teachers and administrators need to be savvy consumers when it comes to purchasing hardware and software.

Use of PowerPoint is an effective way for students to enhance oral presentations or compensate for expressive language difficulties. Microsoft PowerPoint provides visual support for speakers to separate their main ideas from supporting details during a presentation. It is also a visual bridge for memory during oral presentations. The software allows students to generate ideas in the form of an outline that can be presented in a layout as slides. A slide sorter feature allows a presenter to move slides around and graphics can be added for aesthetic purposes. A caution about using PowerPoint is that sometimes students forget it is a visual enhancement of ideas, and many presenters erroneously stand up and read the text of the slides, which is not motivating to the listener.

Many teachers today use the interactive SMART Board at the middle level to help energize presentations and motivate students. Created in 1991, it was the world's first interactive whiteboard. Today it is the world's leading interactive whiteboard, combining the simplicity of using a whiteboard with the powerful resource of a computer. The SMART Board interactive whiteboard has the

flexibility to engage all learning styles:

Visual learners can easily see colorful, movable images and diagrams.

Auditory learners can be immersed in a complete multimedia experience using optional USB speakers or SMART Audio.

Kinesthetic learners can interact and explore by moving letters, numbers, words and pictures with the touch of a finger.

The touch-sensitive display is a favorite feature with students, and connects to a computer and digital projector to show a computer image. Computer applications can be controlled directly from the display, and notes can be written in digital ink and saved to share later. SMART Solutions is a feature that allows upgrades, and there is a database of lesson plans to choose from, on every level.

Podcasting is another technological tool that can be adapted to enhance education of middle-level students. Podcasting lets students listen any time, anywhere, to favorite audio or video syndicated shows via the Internet. For example, students can access radio station *WOR710.com* and click on any Listen Now button to hear a show or interview through the computer. At this site, students can access the Laura Ingraham show

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METHODOLOGY

Radio:

Radio shows are a good resource to develop students' interactive literacy skills. As the name implies, Radio Free World (www.radiofreeworld.com/page14.html) features free radio programs from around the world. Students learning about current events can access Larry King's radio show. On this site, listeners can download transcripts of shows of interest that have been archived since the year 2000. Students are encouraged to e-mail suggestions for future topics for the show and send comments and questions for the *Larry King Show*. This is just one of the options available on this extensive audio site that includes famous speeches from history, different genres of music, and online television shows.

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A text-to-speech screen reader converts electronic text into spoken words.

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to listen to opinions and discussions about the world of politics and current events. A followup activity might be to actually call in and view your political opinions to other listeners.

Students can have their own debates, based on information they learned on the show, articulating their position for or against a specific topic. If the class subscribes as a listener, the shows will automatically be synched to every student's MP3 player (including an iPod) each time he or she docks it. Teachers can record lectures on podcasts, so students can easily and automatically download audio files to hear at a later time (Richardson, 2006).

For our middle-level students to succeed in the 21st century, they must learn how to find information and then know how to use it. Webquests are one activity that requires higher order thinking skills and emphasizes the students' ability to first locate information quickly and then use this information to construct unique products. Webquests are student-centered, inquiry-based missions designed to explore the Web to find answers to higher level thinking problems by searching out information effectively, critically evaluating what they discover, and then applying or adapting what they've learned.

During Webquests, students are exposed to materials, people, activities and ideas that are not found in a standard textbook or a typical classroom. Webquests usually have the following parts: (a) an introduction, (b) a process, (c) a task, (d) a list of resources, (e) a conclusion, and (f) an evaluation. Middle-level students find these quests compelling, because they are interacting with a variety of online resources that may include primary documents, virtual tours, online music, diary entries, animation, sound, newspaper articles and poetry.

For example, at the middle level, *The Diary of Anne Frank* is one of the books typically assigned to students. By visiting http://www.backflip.com/xtour/public_set.shtml?title=Anne%20Frank&src=/members/mblanos/14155251/ptp%3D1&refID=pf, students can learn about Anne Frank's life by investigating an array of literary documents. Students can be asked to first use the links to glean information, then apply what they've learned using different activities. Specifically, on the Anne Frank site, students are asked to first learn about Miep Gies, one of the Dutch citizens who hid Anne Frank and her family from the Nazis. Then they create an original acrostic poem based on the information they just learned. Another creative and interactive activity on this site includes using

visual literacy, or pictures, to create a floor plan of Anne Frank's house. What is unique about Webquests is that they touch on students' multiple intelligences and allow them to work at their own pace. This can be especially useful to differentiate instruction, because students require different amounts of time to complete assignments. Webquests can be completed in groups or individually.

Today's media companies offer global access to content and learning systems that the educator can take advantage of. Two examples are Thinkfinity by Verizon/Marco Polo and Google Moodle. Thinkfinity (1997) is a search engine that relates K-12 curriculum globally and offers free lesson plans, interactive games, content resources, parent resources and homework help through an after-school Web site. A teacher index offers free training, suggestions and grants for programs (www.thinkfinity.org). Google Moodle is an open e-learning platform built inside the Google information system. Teachers can create tutorials by choosing a learning management option and downloading content into it. Student grants are offered for summer study with professionals as potential mentors (Google, 2007). Both of these systems have encouraged a worldwide network of edubloggers discussing content, ideas and cognitive skills (Provenzo, 2005).

Assistive Technology

Assistive technology has made great advances in the domain of reading ability. Reading pens are portable, mini-dictionaries shaped like a pen, with voice options that can scan words (in reverse order or backward), recite words orally, and with a click of a button, give the definition of the word, its derivation, synonyms and antonyms, or use it in another sentence.

A text-to-speech screen reader converts electronic text into spoken words. This allows inefficient readers to process text-based information both visually and aurally, which greatly assists comprehension. This may in turn improve concentration and attention span for some students, leading to better academic achievement (Zimmerman, 2001).

Conclusion

Technology provides opportunities in literacy instruction to improve learning for all students by providing knowledge and experiences that would otherwise not be available to them. Ultimately, the teacher makes the decision about how technology can be most effectively integrated into the curriculum to support instructional outcomes and promote positive literacy learning across the content areas and grade levels.

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METHODOLOGY

Resources:

Freeware - free software - can be downloaded from the Internet without charge or fee. Examples are:

HearIt
www.tucows.com/preview/205274

HELP read
www.pixi.com/~reader1/allbrowser

Web Talkster
www.code-it.com/catalog.htm

Adobe eBook Reader
www.adobe.com/products/ebookreader/main.html

Microsoft Reader Software
www.microsoft.com/reader

Two main commercial software packages convert the visual to aural: Kurzweil 3000 and CASTereader/CAST.

These are highly recommended for students in the upper grades, so they can bypass reading decoding difficulties and benefit from literature and other more advanced genres.

Teachers should be aware of the multiple literacies that students bring with them and support literacy practices in the classroom setting. Consideration must be given to how technology can most effectively be integrated into the curriculum to create dynamic literacy learning environments for the next generation of 21st-century learners. Middle-level students use technology in a variety of ways related to their learning both in and outside of the school setting. Windham (2005) and Borland (2006) have described these students as the “net generation,” citing “Father Google” and “Mother IM” to represent this generation’s affiliation and dependence on the Internet and technology.

REFERENCES

- Azevedo, R. (2005) Using hypermedia as a metacognitive tool for enhancing student learning. *Educational Psychology*, 40, 199-209.
- Audio Books For Free* Audiobooksforfree.com Retrieved on Aug. 14, 2008
- Bartleby.com* (2008) Retrieved on Aug. 14, 2008, from *www.bartleby.com*
- Combs, M. (2003). *Readers and writers in the middle grades*. Upper Saddle River, NJ: Pearson Education Inc.
- Digital Book Index* (2000-2008) Retrieved on Sept. 15, 2008, from *www.digitalbookindex.org/*
- Duckworth, A.L. & Seligman, M.E. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, 16(12), 939-944.
- E-Reader.com (1998-2008) Retrieved on Sept. 15, 2008, from *www.ereader.com/*
- Flint, A.S. (2008). *Literate lives: Teaching reading and writing in elementary classrooms*. Hoboken, NJ: John Wiley & Sons, Inc.
- Google. *Google for Educators*. Retrieved Feb. 24, 2007, from *www.google.com/educators/index.html*
- Hartley, K. (2001). Learning strategies and hypermedia instruction. *Journal of Educational Multimedia & Hypermedia*, 10, 285-305
- Ko, S. & Rossin, S. (2004). *Teaching Online: A practical guide*. Boston: Houghton-Mifflin Co.
- McClosky, P.J. (2006). The Blogvangelist, *Teacher Magazine*, October, 22-29

Moats, L.C. (1999). *Teaching reading is rocket science: What expert teachers of reading should know and be able to do*. Washington, DC: American Federation of Teachers. (ERIC Document Reproduction Service No. ED445323.)

Oblinger, D. & Oblinger, J. (2005). Introduction In D. Oblinger and J. Oblinger (Eds.) *Educating the Net Generation* (pp. 1.1-1.5) Retrieved February 24, 2007, from www.educause.edu/educatingthenetgen.

Provenzo, E.F. (2005). *The internet and online research for teachers* (3rd ed). New York: Pearson.

Radio Free World (1997-2008). Retrieved on July 10, 2008, from www.radiofreeworld.com/

Richardson, W. (2006). *Blogs, wikis, podcasts and other powerful web tools for classrooms*.

Windham, C. (2005). Father Google & Mother IM: Confessions of a Net Gen learner. *Educause review*, September/October, 43-58.

Wired For Youths (2007) Retrieved on Aug. 14, 2008, from www.wiredforyouth.com/books/index.cfm?booklist=audio

Technology Review (2007). *Emerging technologies*, March/April, 110, 45-63.

Zimmerman, B. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. Zimmerman & D Schunk (Eds). *Self-regulated learning and academic achievement: Theoretical perspectives*. pp 1-37. Malvy, N.J.: Lawrence Erlbaum Associates, Inc.