

## Reading and Technology

Make the Connection

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### Why teach reading with technology?

- Many educators view the Internet and multimedia technology as factors contributing to a reduction in the amount of time children are engaged in reading books.
- Today's students think and process information fundamentally differently because different kinds of experiences lead to different brain structures. In fact, evidence indicates that our students' brains have physically changed.
- Digital natives are engaged by the Internet and multimedia technology.



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### Marc Prensky says:

- "Digital natives" lack engagement and motivation in terms of what we offer them in our schools.
- Today's average college grads have spent:
  - over 10,000 hours playing video games
  - Over 20,000 hours watching TV
  - over 200,000 emails and instant messages sent and received
  - over 10,000 hours talking on digital cell phones
  - over 500,000 commercials
  - less than 5,000 hours of their lives reading



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## Marc Prensky says:

- Digital Natives
  - are used to receiving information really fast
  - like to parallel process and multi-task
  - prefer their graphics *before* their text rather than the opposite
  - prefer random access (like hypertext)
  - thrive on instant gratification and frequent rewards
  - prefer games to “serious” work.
- Is it that Digital Natives *can't* pay attention, or that they *choose not to*?
- Should the Digital Native students learn the old ways, or should their Digital Immigrant educators learn the new?



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## I believe.....

- Teaching in the Information Age requires that educators modify their view and transform their instructional practices to utilize technology's power to improve the reading ability of students.
- Today's students need to be guided in developing the ability to make use of the Internet and multimedia technology to increase critical literacy skills.
- Even today, “practice makes perfect.” Student don't like to practice. Multimedia can capture student attention, engage them in learning, and make “practice” happen.



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## Multimedia defined

- Multimedia is the use of several different types of media such as text, audio, graphics, and video, to convey information.
- Multimedia enhances learner experience and makes it easier and faster to grasp information since the information is presented in various formats.



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## Multiple Intelligences and Multimedia Technology

- Multimedia can better address the multiple intelligences, identified by Howard Gardner, much more than traditional teaching methods.
- In the summary "Technology's Impact on Learning," the National School Board Association details the ways that multimedia technologies can address the intelligences. ( <http://www.nsb.org/sbot/toolkit/tiol.html> )



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## Ways that technology addresses the intelligences:

- Software allows learners to write and illustrate their own stories before their fine motor skills are developed enough to allow them to do so by hand.
- Word processing software stimulates learners to interact more closely with their work.
- Audio and video recordings provides learners instant feedback on their storytelling and fluency skills and can help students develop them further.
- Multimedia software helps students create original multimedia learning products.



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## Ways that technology addresses the intelligences:

- Telecommunications programs connect learners who correspond in writing.
- Multimedia products can graphically illustrate many concepts thereby making abstract ideas concrete.
- Software and the Internet can provide challenging visual and spatial tasks which serve to organize information and develop logical thinking .



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### Ways that technology addresses the intelligences:

- "Paint" programs allow students to visual and illustrate written text.
- Desktop publishing software supports graphic design.
- Learners can link to museums, visual databases, and virtual tours, through the Internet.
- Educational games challenge fine motor coordination while developing logical thinking skills and mastery.
- Electronic field trips allow students to interact electronically with experts engaged in exploration



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### Ways that technology addresses the intelligences:

- Interactive presentations allow learners to construct new understandings on many different levels through seeing and hearing.
- Nonlinear presentations (hypertext) allow learners to make decisions about what they will learn.
- Clusters of students working together on computers learn more than individual students working alone.



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### Ways that technology addresses the intelligences:

- Multimedia gives teachers the tools to turn the classroom into centers of student-directed inquiry.
- Technology offers tools for thinking more deeply, pursuing curiosity, and exploring and expanding intelligence as learners build "mental models" with which they can visualize connections between ideas on any topic.



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## National Reading Panel

- The National Reading Panel has identified five crucial components of reading instruction that must be delivered in an explicit and organized way. The components of a balanced reading program are:
  - **phonemic awareness**
  - **phonics**
  - **vocabulary**
  - **fluency**
  - **comprehension instruction**
- Struggling readers may have difficulty in one or more of the crucial areas of reading or merely lack the motivation to read.



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## Why technology?

- Teaching with technology allows educators to better meet the needs of students with diverse abilities while at the same time increasing motivation of all students.
- Technology functions as a bridge to higher reading achievement by engaging students in learning that is relevant and meaningful.



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## Phonemic instruction

- Effective phonemic instruction teaches students to become aware of, think about, and manipulate sounds in spoken language.
- Specifically, learning to blend and segment the phonemes in words provides the greatest benefit to struggling readers.



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## How can technology help with phonemic awareness?

- Several interactive website allow students to explore, hear, and manipulate phonemes as they construct meaning about how language works.
- Examples:
  - Word Wheels  
<http://www.crick.northants.sch.uk/assets/Flash%20Studio/cfslit/WW1/ww.html>
  - Word Blender  
<http://www.bbc.co.uk/schools/wordsandpictures/clusters/blender/games.shtml>



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## Phonics Instruction

- The purpose of phonics instruction is to enable students to understand the relationships between written letters and spoken sounds.
- Phonics instruction produces the best results when letter-sound relationships are taught in a clearly defined sequence.
- Instruction must include the letter-sound relationships of both consonants and vowels.
- The simultaneous presentation of both written words and sounds has proven to be effective in improving children's decoding skills.



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## How can technology help with phonics instruction?

- A number of websites can assist educators in delivering sequenced phonics instruction that encourages students to construct knowledge about the relationship between written letters and spoken sounds.
- Examples:
  - Phonics Word Builder  
[http://www.iknowwhat.com/l\\_3?Area=WordBuilder&COOK=Make+a+Word](http://www.iknowwhat.com/l_3?Area=WordBuilder&COOK=Make+a+Word)
  - Make a Word  
<http://www.starfall.com/n/make-a-word/an/play.htm?f>



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## Vocabulary

- Vocabulary is very important to reading comprehension because students cannot make sense of text without understanding what most of the words mean.
- Vocabulary activities should assist students in learning words that are not likely to be encountered in their daily experiences.
- Additionally, students should be introduced to key vocabulary that is necessary for comprehension of a specific selection.



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## How can technology improve vocabulary?

- Learning experiences that encourage students to actively work with words rather than merely memorizing definitions improves word learning.
- Multimedia technologies that combine words with visual images and sound encourage students to construct complex mental schema that results in greater understanding of words.
- Examples:  
 Raceway Vocabulary  
<http://www.vp.k12.mo.us/Eschool/ES/DDell/set3.13.pps>  
 Journeys Vocabulary  
<http://teachers.emints.org/evanss/journeyvocab.pps>  
 Be Quick Analogies  
<http://www.sadlier-oxford.com/phonics/analogies/analogiesx.htm>



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## Fluency

- The oral reading of text, both accurately and quickly, using correct expression is the goal of fluency instruction.
- Fluency instruction is the most often overlooked instructional component even though research has identified a close relationship between fluency and reading comprehension.
- Automaticity, or rapid, effortless word recognition, must be achieved before students can become fluent readers. Once automaticity has been achieved, the focus of instruction should shift to building fluency.
- Through listening to good models of fluent reading, students come to understand how tone and expression can help written text make sense. Both choral and repeated oral reading has been shown to substantially improve fluency.



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## How can technology improve fluency?

- The speech capabilities of multimedia technologies provide scaffolding and support to students struggling with automaticity and fluency.
- Teachers can guide students in creating self-running hypermedia presentations, using the timing features of software such as PowerPoint, to practice personalized sets of words in which students are lacking automaticity.
- A growing number of websites provide audio files to accompany online books. Students can read the text as they listen to a fluent reader. This technology supports both repeated and choral reading.
- Examples:  
**Book Pop**  
<http://www.bookpop.com/irafashbookread.html>  
**Self-running PowerPoint**  
<http://www.vp.k12.mo.us/Eschool/ES/DDell/pron3.17-3.20.pps>



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## Comprehension

- Reading comprehension refers to the act of understanding and constructing meaning from written words.
- Students must be engaged with text in order to make meaning from the text.
- Comprehension is enhanced when students make connections to prior knowledge.
- Questions are effective in improving reading comprehension because they focus the reader's attention and provide a purpose for reading.
- The process of inquiry promotes active thinking as students read. It helps them to make connections between what they are reading and what they already know.



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## How can technology improve comprehension?

- Inspiration or SMART Ideas software can be used to make connections to prior knowledge.
- Inspiration or SMART Ideas software provides a powerful tool for creating visual maps that students can use to compare and contrast, sequence, analyze cause and effect, map stories, and many other tasks that lead to understanding.
- Basic word processing software provides a useable structure for selecting, sequencing, and otherwise revising and manipulating written text.



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## How can technology improve comprehension?

- The Internet provides countless photos, video clips, and other interactive experience that can be used to build background.
- The Internet allows students to find answers to their questions.
- Examples:  
 Inspiration  
<http://www.vickiblackwell.com/inspiration.html>  
 Interactive skill lessons  
<http://mrsdell.org/readinglesson.html>  
<http://mrsdell.org/causeandeffect/>
- Book Talks  
[Mrs. Frishy and the Rats of NIMH](#)



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## More technology examples

- Use Sound Recorder as a Fluency Center.
- Use Moodle and Nicenet to hold online discussions and literature circles.
- Use Moodle to engage in book chats.
- Study Dog  
<http://www.studydog.com/>



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## My Resources

- Reading and Technology  
<http://mrsdell.org/reading/>
- Gamequarium  
<http://gamequarium.com>
- Readquarium  
<http://www.gamequarium.com/readquarium/index.html>



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## Further Reading

- Marc Prensky's Writing:  
<http://www.marcprensky.com/writing/default.asp>
- Technology's Impact on Learning  
<http://www.nsba.org/sbot/toolkit/tiol.html>
- National Reading Panel  
<http://www.nationalreadingpanel.org/Publications/publications.htm>



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