New Literacies in a Digital Age:
How teachers can make a contribution

Hiller A. Spires, Ph.D.
Professor & Senior Research Fellow
North Carolina State University

October 14, 2009
Three of my favorite words . . . (today!)

Twitter
Moodle
Ning
Tweet if you like

Post Your Questions/Comments
  • If you have a laptop and a twitter account, post your questions and comments as I’m talking. Post to @newlit

View Other’s Questions/Comments
  • Or you can view other’s posts by visiting twitter.com/newlit
• What does it mean to be literate today?

• How can new literacies help us think, learn, & work in innovative ways?

• How will you contribute to the world of new literacies?

http://www.flickr.com/photos/mmatasic/3473067292/sizes/m
A New Educational Era

http://www.flickr.com/photos/lori_greig/2202727502/
Technology…The Extremes

What does it mean to be literate today?

http://www.flickr.com/photos/mmatasic/3473067292/sizes/m/
America’s Educational Challenge

High School Dropouts
• 19% of males 16-24 are dropouts
• 28% of Latinos, 21% of African Americans, and 12% of European Americans are dropouts
• Each dropout cost tax payers more than a $250,000 over his/her lifetime

Teacher Turnover
• Only about 60% of those trained to teach take teaching jobs
• 30%- 50% percent of new teachers leave the profession within the first five years

Left Behind in America, 2007
Future supply of High School Graduates
(Andreas Schleicher, OECD, 2007)
Future supply of College Graduates
(Andreas Schleicher, OECD, 2007)
How the demand for skills has changed
Economy-wide measures of routine and non-routine task input (US)

Mean task input as percentiles of the 1960 task distribution


Routine manual
Nonroutine manual
Routine cognitive
Nonroutine analytic
Nonroutine interactive

(Levy and Murnane, 2004)
Expert thinking and problem solving involves effective pattern matching based on detailed knowledge. The set of skills used by the stumped expert to decide when to give up on one strategy and what to try next.

Complex communication requires the exchange of vast amounts of verbal and nonverbal information. The information flow is constantly adjusted as the communication evolves unpredictably.

Levy & Murnane, 2004
Having Our Say: Middle Grade Student Perceptions of School, Technologies, and Academic Engagement

Results from a study conducted with 4,000 NC middle grade students

• Students demonstrate an increased passion for & reliance on technologies for entertainment & communication.
• In many cases, out of school technology use had “lapped” in school technology use, even in rural and underserved schools.
• Students demonstrated a sophisticated knowledge about what they want to do in school and what activities interested them.

Spires, Lee, Turner, & Johnson, 2008
Having Our Say: US & Chinese Teacher’s Perceptions

Benefits of Computers
- Believed that computers could support student-centered learning
- Believed that computers could enhance student creativity and imagination
- Believed that students could learn problem solving more effectively with computers

Chinese teachers assigned higher value to creativity and innovation in contrast to US teachers.

Hindrances to Technology
- Reported having useful sites blocked
- Reported lack of connectivity
- Reported a lack of technology support

Spires, Morris & Zhang 2008
Web 2.0 Literacies

• Access content
• Create content
• Mash-up content
• Publish content
In addition to being skilled with print text . . .

The “literate” person today needs to:

- Learn **about** Technology
- Learn **with** Technology
- Learn **through** Technology
How can new literacies help us think, learn, & work in innovative ways?

http://www.flickr.com/photos/mmatasic/3473067292/sizes/m/
Have you read?
EDUTOPIA: A Digital Odyssey

To view video visit edutopia.org
Partnership for 21st Century Skills Framework

http://www.21stcenturyskills.org/route21/
Partnership for 21st Century Skills

Learning and Innovation Skills
- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Information, Media, and Technology Skills
- Information Literacy
- Media Literacy
- ICT Literacy

Life and Career Skills
- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

http://www.21stcenturyskills.org/route21
Four Skill Areas to Develop With Your Students

- Online Reading Comprehension
- Video and Multimedia
- Web 2.0 and Social Networking
- Educational Games
Access to information

We live in an age of exploding access to information — “a tsunami of data.”

Richard Saul Wurman
Online Reading  
(Leu, Kinzer, Coiro, & Cammack, 2004)

**Understanding** – Students know when information makes sense.

**Relevancy** – Students know when information meets their needs.

**Accuracy** – Students know how to verify information with another source.

**Reliability** - Students know how to tell when information can be trusted.

**Bias** – Students know that everyone “shapes” information and how to evaluate this.

**Stance** – Students are “healthy skeptics” about online information.
Creative Synthesis -- A 21st Century Skill

Diagram by Jon Rowe
Grassroots Video/Multimedia

• Using media to engage students in creating and learning content.

• Complex thinking and the “YouTube Aesthetic” don’t have to be mutually exclusive.

• Get a Flip camera!
Inquiry Learning Project (ILP) Kits

Spires, Hervey & Watson, 2009
Daniel Pink’s Six Senses (2005)

• Design - not only function
• Story – not only argument
• Symphony – not only focus
• Empathy – not only logic
• Play-not only seriousness
• Meaning-not only accumulation

"Think left and think right and think low and think high. Oh, the thinks you can think up if only you try!" Dr. Seuss
Web 2.0 and Social Networking

- Henry Jenkins et al. (2006)
- New media literacies that evolved through collaboration and social networking in a rich media environment (participatory culture)
- *Confronting the Challenges of Participatory Culture*

<table>
<thead>
<tr>
<th>Play</th>
<th>Capacity to experiment with one’s surroundings as a form of problem-solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>Ability to adopt alternative identities for improvisation and discovery</td>
</tr>
<tr>
<td>Simulation</td>
<td>Ability to interpret and construct dynamic models of real-world processes</td>
</tr>
<tr>
<td>Appropriation</td>
<td>Ability to meaningfully sample and remix media content</td>
</tr>
<tr>
<td>Multitasking</td>
<td>Ability to scan one’s environment and shift focus as needed to salient details</td>
</tr>
<tr>
<td>Distributed Cognition</td>
<td>Ability to interact meaningfully with tools that expand mental capacities</td>
</tr>
<tr>
<td>Collective Intelligence</td>
<td>Ability to pool knowledge &amp; compare notes with others toward a common goal</td>
</tr>
<tr>
<td>Judgment</td>
<td>Ability to evaluate the reliability &amp; credibility of different information sources</td>
</tr>
<tr>
<td>Transmedia Navigation</td>
<td>Ability to follow the flow of stories and information across multiple modalities</td>
</tr>
<tr>
<td>Networking</td>
<td>Ability to search for, synthesize, and disseminate information</td>
</tr>
<tr>
<td>Negotiation</td>
<td>Ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative norms.</td>
</tr>
</tbody>
</table>
Games Galore!

- Game playing is universal--almost all 12-17 year olds play games.
- Game playing is social.
- Almost a third of teens play games that are listed as appropriate only for people older than they are.

Pew Internet & American Life Project (2008)
ENGAGE ME or ENRAGE ME
What Today’s Learners Demand

“Rather than being empowered to choose what they want and to see what interests them and to create their own personalized identity – as they are in the rest of their lives – in school, they must eat what they are served.”

“School didn’t teach me to read – I learned to read from my games.” --A Student
Games and 21st Century Learning

- American Federation of Scientists (2006)
- Game players are able to:
  - Rapidly analyze new situations
  - Interact with characters they don’t really know
  - Solve problems quickly and independently
  - Think strategically in a chaotic world
  - Collaborate effectively in teams

Becker & Wade, 2004
Society continuously adapts to innovation

http://www.youtube.com/watch?v=vWaQz1HONog
Writing “will create forgetfulness in men’s souls because they will not use their memories; they will trust to the external written characters and not remember of themselves.”

Readers will become “hearers of many things and will have learned nothing . . .

Plato’s Phaedrus
Encyclopedia as Innovation

Accessing information at home

http://www.flickr.com/photos/stewart/461099066/sizes/l/
Innovation

Scale up

Took over 50 years for the electrification of America

http://www.flickr.com/photos/bunaen/1254936441
How long will digitalization take?
Famous Last Words . . .

• “Who in their right mind would ever need more than 640k of ram!?"
  
  **Bill Gates, 1981**

• “I think there is a world market for maybe five computers.”
  
  **Thomas Watson, Chair, IBM, 1943**

• “Telephone has too many shortcomings to be seriously considered a means of communication.”
  
  **Western Union memo, 1876**
How will you contribute to the world of new literacies?

and to your students’ digital future?
New Learning Ecology

1:1 Technologies

Teacher as Content Expert, Facilitator, Consultant, Mentor, & Improvisationist

Immediate and Constant Access to Information

Self-Directed, Self-Regulated, Curious, & Creative Learners

Intensity, Relevance and Personalization of Learning

Spires, Wiebe, Hollebrands, Young, & Lee, 2009)
5 Suggestions for 21st Century Teachers

- Invent your TPACK
- Design project-based inquiries
- Hone the new global skill set
- Become an expert in performance-based assessment
- Create an identity in professional learning communities and networks

...INNOVATE.... INNOVATE... INNOVATE...
Technological Pedagogical Content Knowledge (TPACK)

Mishra, & Koehler, 2006
Technological Pedagogical Content Knowledge (TPACK)

Mishra, & Koehler, 2006
Technological Pedagogical Content Knowledge (TPACK)

Pedagogical Knowledge (PK)

Context

Mishra & Koehler, 2006
Technological Pedagogical Content Knowledge (TPACK)

Mishra & Koehler, 2006
Technological Pedagogical Content Knowledge (TPACK)

Technological Knowledge (TK)

Pedagogical Knowledge (PK)

Technological Pedagogical Knowledge

Context

Mishra & Koehler, 2006
Technological Pedagogical Content Knowledge (TPACK)

Technological Knowledge (TK)

Content Knowledge (CN)

Context

Mishra & Koehler, 2006
Technological Pedagogical Content Knowledge (TPACK)

- Pedagogical Knowledge (PK)
- Content Knowledge (CN)
- Pedagogical Content Knowledge

Mishra & Koehler, 2006
Got TPACK?

Mishra & Koehler, 2006
Project-Based Inquiry

Any Value in Inverting Revised Bloom’s Taxonomy?

Anderson & Krathwol, (2001)
Create

The learner creates new ideas and information:

- Design
- Construct
- Imagine
- Produce
- Invent
- Devise
- Forecast
- Innovate
- Generate

Anderson & Krathwol, (2001)
A New Global Skill Set
Performance-Based Assessment

http://www.littlesunshines.co.uk/userimages/hand.gif
Professional Learning Communities & Networks

http://www.networkweaving.com/blog/uploaded_images/Mayors-750304.gif
New Literacies & Global Learning

Project-Based Inquiry Master’s Program at NCSU:
http://cednlgl.wikispaces.com/

New Literacies Collaborative:
www.newlit.org

Hiller’s wiki with resources:
http://eci546.wikispaces.com/
What does it mean to be literate today?

How can new literacies help us think, learn, & work in innovative ways?

How will you contribute to the world of new literacies?

http://www.flickr.com/photos/mmatasic/3473067292/sizes/m/
The future is already here – it's just not evenly distributed.

William Gibson

"This is the moment—this is the most important moment right now. We are about making a contribution. That’s what our job is. It’s about contributing something.” — Benjamin Zander

How will you contribute to the world of new literacies, to your students’ digital future?
Thank you!
Let me hear from you.
hiller_spires@ncsu.edu
References


*Toward a theory of new literacies emerging from the internet and other information and communication technologies* in *Theoretical Models and Processes of Reading* (5th Edition).
References


References


