What Matters When Learning from Text

Susan R. Goldman
Learning Sciences Research Institute
University of Illinois at Chicago
sgoldman@uic.edu
Learning from Text

Å Fears that reading to learn would become obsolete in the electronic age are unfounded.
Å Not only is traditional reading even more important but 21st century literacy requires that we learn
   ï to ñreadòmultiple media, including dynamic visuals and graphics.
   ï to relate these multiple textual forms, highlighting the intertextual aspects of reading to learn.

Å Two Parts to My Comments
   ï Theoretical orientation to learning from text
   ï Four Big Ideas on what matters when learning from text

   Å Text refers to both traditional print-based text and the new media forms.
Learning from Text: Theoretical Framework

• Learning from text is a cognitive, social, and situated phenomenon
• Involves intertextual and multimodal processes
• Processing results in some sort of an internal representation
• Discourse and gesture analysis are useful methods of looking at learning from text, at how people are making sense - individually or together
• Four big ideas
Cognitive, Social and Situated

• Processing occurs in specific situations
  • Conditions in the situation create affordances that learners may or may not take advantage of

• Text/Information sources have purpose in a sociocultural community
  • Disciplinary community
    • Each establishes norms and genres for communication among members of the discipline. (e.g., APA publication manual)
  • Classroom community and power relations
    • What texts are valued in the classroom
    • What texts can be brought into a classroom discussion - what’s a legitimate text?
    • Who can introduce it, bring it in
Intertextual and Multimodal

Intertextuality

- Bringing together different texts

Sometimes sequentially, sometimes simultaneously

- Sequential: looks like single text reading
- But meaning depends on prior texts/prior knowledge
  - Example from NY Times (5/23)

- Simultaneously: comparing two opinion pieces on the Iraq war - one written by a known proponent and one by a war protester.

We can be said to ‘read’ pictures, videos, graphics as well as traditional print. They all have a ‘text’
WASHINGTON, May 22 — Congressional Democrats relented Tuesday on their insistence that a war spending measure set a date for withdrawing American combat troops from Iraq. Instead, they moved toward a deal with President Bush that would impose new conditions on the Iraqi government.

The decision to back down was a wrenching reversal for leading Democrats, who saw their election triumph in November as a call to force an end to the war. It was the first time since taking power in Congress that the Democrats had publicly agreed to allow a vote on war financing without a timetable for troop withdrawal.

But even so, many Democrats, including House Speaker Nancy Pelosi of California, indicated that they would not support the war money, meaning that a significant number of Republicans would have to sign on to ensure the plan’s approval.
Articles

WASHINGTON

Democrats Pull Troop Deadline From Iraq Bill
By CARL HULSE
The decision was a wrenching reversal for leading Democrats, who saw their election triumph as a call to end the war.
May 23, 2007 | FRONT PAGE | NEWS

WASHINGTON

War Proposal Still Stymied Despite Talks
By CARL HULSE
Congressional Democrats remain uncertain how they would shape a war spending measure that has been the center of a political and policy battle with President Bush.
May 22, 2007 | U.S. | NEWS

WASHINGTON

Talks, but No Breakthrough, on Iraq War Spending Measure
By CARL HULSE
A crucial negotiating session ended with Congressional Democrats and the White House blaming each other for being intractable.
May 19, 2007 | U.S. | NEWS

WASHINGTON

3 Months of Tense Talks Led to Immigration Deal
By CARL HULSE and ROBERT PEAR
Hours before a bipartisan deal on immigration policy was to be announced Thursday, a tenuous compromise was threatening to unravel.
May 19, 2007 | U.S. | NEWS

WASHINGTON

Congress and Bush Striving for Compromise on War Funds
By CARL HULSE and JEFF ZELENY
Democrats braced for potential defections by lawmakers leery of any compromise with President Bush.
May 18, 2007 | U.S. | NEWS

NATIONAL

Votes on Troop Withdrawal Highlight House and Senate Differences
By CARL HULSE
The back-to-back votes in the House and Senate on plans put forward by liberal Democrats to bring the war in Iraq to a close by ordering a withdrawal of troops were both defeated but the results were something of a surprise.
May 18, 2007 | U.S. | NEWS
Learning From Text: Four Big Ideas

Å The Text matters
  í Text - broadly construed - has structure and content

Å Knowledge matters
  í Domain knowledge
  í Knowledge of text structure and genre

Å Processing matters
  í Sense or Meaning making versus memorization
  í Evaluative, metacognitive, self-regulatory

Å Purpose, Task, Context matter
The Text and Knowledge

Å Text structure and organization
  • Complexity of vocabulary, sentences complexity,
  • Is the organization cued? Does the learner understand the cue value? (Goldman & Rakestraw, 2000)

Å Text content assumes certain kinds of topic-related knowledge

Å Learning is easier for those with little prior topic knowledge if the relations among concepts are explicit and if the intersentential relationships are explicit.
  • Work by Eileen Kintsch, Danielle McNamara, Bruce Britton, Isabel Beck, Moddy McKeown e.g.
From time to time the warm current that flows along the coast of Ecuador moves south and pushes the Peru Current away from the coast. This event is called El Niño because it takes place around Christmas time. El Niño means "the child," which is what Spanish-speaking people call the baby Jesus.

When El Niño comes, it brings bad times to Peru's coast. Heavy rains cause flooding and landslides.

Every three to five years, the Pacific Ocean's current changes abruptly along the western coastline of South America and causes serious economic hardships for the people of Peru. This sudden change is called El Niño, which means the Child Jesus, "because it occurs right after Christmas time.

When El Niño happens two very important climate changes occur. The usually cool Pacific waters become warmer close to the coast, and there is ten times the normal amount of rainfall.
BUT -- the key is processing

Å For those **with the prior knowledge** needed to fill in the gaps in the original text, revisions for explicitness either do not help or sometimes negatively impact performance.

Å What makes the difference for learning? The kind of processing that learners do.

- Better learning is associated with processing for meaning - strong evidence for this
- Better learning is associated with metacognitive monitoring and self-regulatory processing -- an emerging research base for this

Å Caveat: Established for traditional text forms; burgeoning research on other media.
Better sense making and learning occur if learners

- Actively engage by questioning, explaining, & connecting ideas (reasoning) within and across texts, with and about the content.

- Integrate with relevant prior knowledge
  
  - Research by Goldman, Coté, Chi, Graesser, Myers, O'Brien, McNamara, Kintsches

- Adopt a critical stance toward the text
  
  - Ask deep as compared to shallow questions
    
    - Why and how that seek underlying causal mechanisms versus cut and paste questions
    
    - Analyze and compare across sources to determine consistencies and inconsistencies in information (e.g., Goldman, Braasch, Wiley, & Graesser, 2004; Wolfe & Goldman, 2005)

Paraphrasing presented information is not associated with better learning. Sometimes
Learning Science from the Web

(Collaboration with Wiley, Graesser, Braasch, Sanchez)

• Multiple web pages available for them to gather information to write essay explaining why the Mt. St. Helens volcano erupted in the 90s.

• Good learners differentiated how they allocated their time and thinking across reliable and unreliable sites whereas poorer learners did not.

• Good learners also engaged in more self-explaining than did poorer learners.

  ï Short video of one of the better learners
Better Learner in Volcano Study

First reads part of text. Then using the diagram tries to relate information on where volcanoes occur to plates and why they occur at the boundaries.
Purpose, Task, Context: Why you are reading matters

Â Task asks you to read a story or novel and relate the plot compared to describe the characters
ï Different information is differentially important

Â Reasoning from evidence
ï In a classroom context where disciplinary reasoning is being introduced
ï Purpose for reading becomes one of looking for evidence for a claim.

Â Teacher in 9th grade language arts classroom established norms of finding evidence in the text to justify answer. (Goldman, 2004; Goldman & Bloome, 2004) inst dial. example

Â When students went back to the text to find evidence for their claims they read differently than when they had no such specific purpose. You could see them turning pages, skimming, going back and forth.
Classroom Example

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>924</td>
<td>T</td>
<td>Someone tell me what their lifestyle is</td>
</tr>
<tr>
<td>925</td>
<td></td>
<td>There are clues throughout the entire piece (<em>T repeats questions</em>)</td>
</tr>
<tr>
<td>932</td>
<td>D</td>
<td>They are really close</td>
</tr>
<tr>
<td>933</td>
<td>T</td>
<td>They are really close.</td>
</tr>
<tr>
<td>934</td>
<td></td>
<td>How do you know?</td>
</tr>
<tr>
<td>935</td>
<td>D</td>
<td><em>causeé</em></td>
</tr>
<tr>
<td>936</td>
<td>T</td>
<td>Give me some evidence.</td>
</tr>
<tr>
<td>937</td>
<td></td>
<td>When I ask for evidence I want give me quotes.</td>
</tr>
</tbody>
</table>
Two Take Away Messages

Learning from text is a cognitive, social, and situated phenomenon that is inherently intertextual.

Text, knowledge, and task/purpose matter in so far as they create affordances (or set constraints) on meaning-making and metacognitive processes.
Contact:
sgoldman@uic.edu
References

