

Synthesis of Multiple Texts:

Exploring Activities and Research that can Inform Intentional Teaching

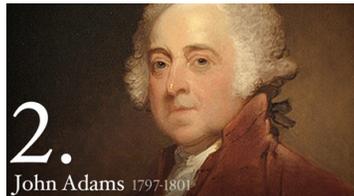
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Michelle Schira Hagerman,
Michigan State University College of Education
schiraha@msu.edu
<http://mschirahagerman.com>
@mshagerman

Your task:

Using multiple Internet texts of any genre or modality (e.g., printed text, images, video, graphs etc.) construct an integrated understanding of the following question (it is taken directly from the PARCC Assessment practice materials)

(<http://www.parcconline.org/sites/parcc/files/Grade11SampleItems.pdf>)



President John Adams and First Lady Abigail Smith Adams believed strongly in freedom and independence. How, if at all, did their perspectives on freedom and independence differ?

Though you will not have time to write about what you've learned during this round table session, imagine that you are doing this research so that you can write an essay in which you **juxtapose** President Adams' and the First Lady Adams' perspectives on freedom and independence, and in which you **provide supporting evidence from multiple texts to justify** your claims.

Image Credits

Image of President Adams from <http://www.whitehouse.gov/about/presidents/johnadams>

Image of First Lady Abigail Smith Adams from http://en.wikipedia.org/wiki/Abigail_Adams

Questions to Guide our Discussion

- What did you do before you went to the Internet?
- How did you generate search terms?
- Did you use multimodal texts? What guided your choices?
- How did you communicate with your partner as you engaged in this process?
- How did you choose information sources?
- Did you evaluate texts? What criteria did you use?
- How did you construct an integrated understanding of the information you found, gathered and read?
- How did note taking support your process?
- How did you use your reading/writing purpose to guide you?
- How will writing help you to synthesize your understanding of this topic?
- How recursive was your process?
- How engaged did you feel?

Summary of Research Findings that Can Inform our Practice

What is Synthesis of Multiple Texts?

There are many definitions. Here, I provide a sampling taken from a range of sources (because we're talking about synthesis of multiple texts...so a single perspective just won't do!)

As you read, ask yourself:

Which definition(s) resonate with your understanding?

Which of them extend your current conceptions of synthesis?

"mental representations of specific texts, situations described in texts, and relations among texts" (Perfetti, Rouet & Britt, 1999, p. 99).

- using accurate and significant knowledge from multiple sources;
- explaining relationships and detecting broad patterns;
- recognizing multiple perspectives and diverse possibilities when creating integrated ideas or solutions; and
- using insights gained to construct new knowledge for others that is generative. (Beal, 2010, p. 39)

"When students engage in synthesizing, they move from simply recalling the facts in the text to considering how the author's compilation of these facts conveys a big idea." (Cummins & Stallmeyer-Gerard, 2011, p. 395)

"Selecting, organizing and connecting are also apparent in discourse synthesis, a highly constructive act in which readers become writers. In discourse synthesis, readers (writers) select, organize and connect content from source texts as they compose their own new texts." (Spivey & King, 1989)

"[...] Synthesis requires the reader to bring together an awareness of the reading processes and underlying understanding of the text. The Internet introduces additional challenges to coordinate and synthesize vast amounts of information presented in multiple media formats, from a nearly unlimited and disparate set of sources [...]. This presents important challenges to online readers as they determine what to include and what to exclude." (Leu, Kinzer, Coiro, Castek & Henry, 2013)

"To 'bring together' information from multiple text sources, readers need to go beyond decoding and comprehension processes associated with word-and sentence-level processes, often referred to as simple views of reading [...] They have to move to interpretive levels and decide what the text *means* in the context of their purpose or

goal. They need to decide what information is relevant; if it fits together coherently; if there are gaps or inconsistencies; and if it contradicts previously acquired knowledge. If such issues arise, readers need to decide what to do about them. The decisions and what to do about them often depend on information *about* the text, such as who wrote it, when and for what purpose.” (Goldman, Lawless, & Manning, 2013, p. 180)

Also, intertextuality:

“...readers mentally transpose texts into other texts, absorb one text into another, and build a mosaic of intersecting texts as they read.” (Hartman, 1995, p. 526; Kristeva, 1969)

Indicators of Synthesis During Reading and In Writing

What indicators of synthesis can we watch and listen for as students engage in reading to synthesize, particularly on the Internet?

- **Constructing understanding within a single text** by summarizing, questioning, paraphrasing or restating. Students do this a lot; it’s a necessary starting place for synthesis, especially with novices (Rouet, 2006; Hagerman, 2014)
- **Using textual cues in expert ways** to evaluate information, establish its relevance, and trustworthiness (e.g., credibility of authorship, identifying the context in which the information was written, the biases and interests of the author, the purpose for which the information was written etc.) to establish relevance and trustworthiness of the text (Rouet, 2006; Shanahan 2009)
- **Notetaking**, especially when connections are drawn, ideas are juxtaposed in a way that shows bricolage, or the creative assembly of connections (DeSchryver, 2012)
- **In-the-moment insights** that demonstrate idea play, connections to background knowledge and the verbalization of new understanding from texts (Spiro, 2006; DeSchryver, 2012)
- **Reinforcement or recognition of corroborating information** found in more than one place. Students may say something like, “I’ve read this before so it must be important/true” (DeSchryver, 2012; Hagerman, 2014)
- **Articulating what is known on the issue and/or what is not yet known** as a way to clarify logical next steps (Hagerman, 2014)
- **Collaborative review of understanding and next steps.** Talking about what is understood, not yet understood and still needs to be understood with a partner

(Hagerman, 2014)

- **Using a focus on task purpose to prompt planning for next steps** (Goldman, Lawless & Manning, 2013; Hagerman, 2014)
- **Generative synthesis** – ideas that go beyond the texts to something more than what the texts said (DeSchryver, 2012)

On the Use of Background Knowledge

Schema theory suggests that what is already known is the foundation for knowledge construction (Anderson & Pearson, 1984). Much of what we ask students to do in school is to learn about things they know little about. To enable students to construct more sophisticated understandings of disciplinary content, we should engage their pre-existing schemas, find out what they know, and challenge misconceptions (Bransford, Brown & Cocking, 2000) so that misconceptions don't influence what they understand and remember from texts (e.g., Panayiota & van den Broek, 2005).

When adolescents are asked to “go online” to research a topic that they know little about, and then write a summary or an argumentative essay using information that they found from multiple information sources, we need to recognize the role that background knowledge can play.

Fistly, background knowledge will support the construction of meaning from single texts (Anderson & Pearson, 1984; Kintsch, 1998). We must recognize that for novices who generally have very little knowledge, they will tend to integrate background knowledge into their written essays. They may rely less on texts and use more background knowledge than facts from texts. This is not, in my view, evidence that they have not read or understood what they've read, or even evidence that they're not trying to synthesize information from multiple texts either. Rather, it may be that the cognitive load of the task prevented more advanced integration of information from the texts they read, that they did not really understand the task purpose, and/or that they need to become more experienced with the range of strategies needed to construct meaning across multiple texts. Background knowledge can support knowledge construction, but ideally we want to move students toward greater reliance on information from texts.

Recent evidence suggests that students with stronger prior opinions on controversial topics will write argumentative essays that are more biased toward their previously held ideas. These students may “add” information that bolsters their stance, rather than “borrow” information that builds a more balanced case (van Strien, Brand-Gruwel & Boshuizen, 2013). As teachers, we should keep this in mind and prepare students to

confront their own confirmation biases (Wason, 1968) as they synthesize information from multiple texts.

What can we look for in students' writing that would be considered evidence of synthesis of multiple texts?

- Evidence of intertextuality, and integration of details from two (or more) websites;
- Inclusion of a claim, with evidence, using two relevant details (Leu, Coiro, Kulikowich, Sedransk, Everett-Cacopardo, McVerry et al., 2012)
- Inclusion of a thesis or position statement informed by corroborating evidence taken from multiple texts
- In persuasive arguments, counterpoints to a central claim taken from one or more sources different from those used to construct the central claim
- Use of integrative, connective and transitional phrases that signpost the student's integrative thinking; also parallel structures (Goldman & Rakestraw, 2000; Goldman & Wiley, 2004)

Instructional Practices that Merit Exploration

We know less than we would like to know. However, the following set of pedagogical practices have received some support in the literature and can ground our practice as we think more critically about what works for our diverse students across our diverse contexts.

I think it's especially important to orient ourselves toward complexity when we're thinking about how to teach synthesis of multiple texts. There are two ideas that ground my own thinking:

- **Synthesis of multiple texts, especially online, engages a complex set of processes that take considerable time and practice to develop.** This point may seem obvious, but cannot be understated (Leu, Kinzer, Coiro, Castek & Henry, 2013).
- **To teach these complex processes will require complex and integrated pedagogies.** No single method is likely to move students toward more expert ways of constructing an integrated understanding across multiple, multimodal Internet texts. A complex, integrated, and long-term approach that draws from the best of what we know about literacies instruction should frame our choices.

Methods Worth Trying

- 1) **Use direct instruction to explain synthesis,** to explain synthesis for the particular task purpose you have assigned (e.g., write a persuasive argument, write a critical analysis, write a research report) and to introduce strategies that good readers use when synthesizing. (Cummins & Stallmeyer-Gerard, 2011)

- 2) **Apprentice students into expert ways of synthesis for your discipline.** Make explicit the strategies that expert historians, scientists, writers use (Shannahan, 2009).
- 3) **Explore and challenge students' epistemological beliefs.** The ways students think about what knowledge is and how it is created can influence their integration processes. Work by Kuhn and colleagues (Kuhn, 2001; Kuhn & Park, 2005) has shown that younger students will usually hold *absolutist* views – that is, knowledge is objective and located in the external world; older children develop a *multiplist* view – that knowledge is in the individual, subjective, uncertain and cannot be evaluated. Some children become *evaluativists* who “consider knowledge as constructed and acknowledge uncertainty without forsaking the need for evaluation” (Barzilai & Zohar, 2012, p. 42). Evidence from a study by Barzilai & Zohar (2012) suggests that “higher levels of source evaluation and integration are correlated with increased epistemic metacognitive knowledge” (p. 73) which means that students who were better able to strategize methods of the evaluation of information and the synthesis of texts were also more likely to think like *evaluativists* about knowledge.
- 4) **Assign collaborative online inquiry.** Reading, searching, evaluating, and synthesizing ideas with a peer can support comprehension (Coiro, Castek & Guzniczak, 2011) and, with guided support, can prompt authentic discussion of synthesis of ideas across texts. I noticed in my research study that when students worked together repeatedly, they got to know one another and became more proficient as a team over time.
- 5) **Make your strategic processing explicit by using think alouds** (Coiro, 2011; Kucan & Beck, 1997; Palinscar & Brown, 1984). Use short screencasts to model strategies. (Hagerman, 2014) [Keep these 1-2 minutes in length if you can. In my study, some of them were too long and students started to tune out] [links to examples at <http://mschirahagerman.com/downloads-and-links>]
- 6) **Prompt students to use their reading purpose** to guide their inquiry and synthesis processes. Purpose will drive the inquiry process and therefore the process of synthesis as well (Goldman, Lawless & Manning, 2013). Construct prompts, especially for novices, that make the requirement for synthesis explicit. Some evidence suggests that argumentative, persuasive essays naturally cue students to think about multiple perspectives. This type of prompt can therefore be used to scaffold synthesis.
- 7) **Encourage methods of notetaking that emphasize the switch from one text to another.** I asked students to use a different colored sharpie when they started taking notes from a new information source. This method forced students to

think about the switching of information sources. I cannot conclude that this supported synthesis, *per se*, but students reported finding this helpful, particularly when they went back to write their argumentative essays.

- 8) Students will ask “do we have to cite our sources” and the answer should always be yes – of course. **Do not accept performative citation**, however. Students should articulate why they have chosen a particular source with a critical rationale and record all pertinent information that will enable the source to be revisited.
- 9) **Model use of digital tools for notetaking** that enable tracking, curation, annotation, and even synthesis of ideas across multiple texts. Consider Google Documents, Citelighter (citelighter.com), Evernote as examples of applications.
- 10) **Use guided questioning** to prompt student reflection on synthesis processes. What are you thinking about now? What strategies are you using? How does this information connect to other information you have read, compare to your background knowledge or extend your understanding in some way?
- 11) **Ask students to write**. Synthesis happens as students write (e.g., Mateos, Martín, Villalón & Luna, 2008). Encourage iteration, a return to information sources during writing, and revision that strengthens the synthesis.

LINKS: *Learning to Integrate Internet Knowledge Strategically* (Hagerman, 2014) is one example of an integrated approach to teaching synthesis of multiple Internet texts that showed some promise in supporting synthesis of multiple Internet texts.

LINKS involves:

- (a) dyadic discussion of the task prompt, reading purpose and background knowledge;
- (b) quick, direct instruction of [(PST)² + (iC³)] strategies (see below);
- (c) teacher modeling of strategy use for the purpose of constructing an integrated understanding of topics from multiple texts via a series of screencasts that gradually released responsibility to students over three intervention sessions;
- (d) 30 minutes of dyadic online inquiry;
- (e) guided teacher questioning that prompted application of [(PST)² + (iC³)] strategies during online inquiry;
- (f) notetaking that required change of ink color when information source changed;
- (g) writing a persuasive argument for 20 minutes.

In my study, students (n=16) in the treatment condition were more likely than the control group, at posttest, to use more facts in the construction of counterpoints that came from information sources that were not used to construct the main argument. This suggests that these students were able to leverage a broader range of information

sources and integrate ideas from a broader set of information sources into their written work, particularly in support of the contrasting perspective. Students in the treatment condition also used more background knowledge in their arguments. Importantly, students engaged in a series of three treatment sessions plus they completed a pretest and a posttest without intervention. Five sessions may NOT have been enough time to really see substantive growth in synthesis skill development. The lesson: give more practice and more time for these skills to be learned.

[(PST)² + iC³]

A formula for Synthesis of Multiple, Multiple-Modal Internet Texts

created by Michelle Schira Hagerman (2012)

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P = Purpose

What do we have to do?

P = Prior Knowledge

What do we already know about this topic?

S = Search Terms

What search words and phrases will we use to find good information?

S = Source Selection

Which of the sources in the SERP seem promising? Why?

T = Type

What type of text is this (e.g., blogpost? Infographic?) and what should the structure tell me about what I will probably find there?

T = Trustworthy

How trustworthy is this information? What criteria have we used to judge it?

*judgment of trustworthiness happens as students read information sources too

+ [click!]

i = Identify Important Ideas

What information is important here? Why is this information important and relevant to our task purpose?

C = Compare

How does this information compare with what we already knew?

C = Connect

Does this back up something we have already read? Does differ in some way from what we have read elsewhere? Is it unique information that takes our understanding in a new direction?

C = Continually Update

What does our overall understanding of the problem look like now?

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