

Evidenced-Based Argumentation as a Scaffolding  
for Advanced Reading Comprehension

Cindy Litman  
Cynthia Greenleaf  
Irisa Charney-Sirott &  
Ursula Sexton  
with MariAnne George and Angela Fortune

Strategic Literacy Initiative, WestEd  
[www.wested.org/ra](http://www.wested.org/ra)<sup>1</sup>

*Purpose*

The classroom observation research we report on today comes out of Project READI of the IES Reading for Understanding Research Network Initiative.

Project READI is a 5-year collaboration between The Learning Sciences Research Institute at the University of Illinois at Chicago and partner organizations, including WestEd's Strategic Literacy Initiative. Project READI addresses reading for understanding across the developmental spectrum from grades 6 thru 12, and in three subject matter areas: literature, history and science.

Our definition of reading for understanding focuses on evidence-based argumentation from multiple text sources as a means for building deep levels of comprehension. By focusing on evidence-based argumentation, our goal is to make the literacy competencies that until now have been "reserved" only for the most advanced students accessible to *all* students.

*Theoretical Framework*

Our work draws on theories of text processing, argumentation, and the importance of sociocultural context.

Evidence-based argumentation is an essential practice across disciplines and provides a unifying framework for disciplinary literacies, although the specific nature of argumentation differs (Stevens, et al., 2005). Recent curricular reforms, including the Common Core State Standards, emphasize argumentation as a critical element of instruction across the disciplines (CCSS, 2010). Based on Toulmin (1958), we define argumentation broadly as making a claim or assertion that is supported by evidence that connects to the claim in a principled way. Toulmin's model accommodates the discipline-specific nature of argumentation. Unlike formal logical models where an argument is assessed on the basis of absolute proof,

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Toulmin’s model of argumentation focuses on real-world problems that entail uncertainty and probability—and involve data that requires interpretation—where the quality of arguments are assessed as appropriate or inappropriate, stronger or weaker within a particular context or discipline. Argumentation emphasizes personal agency rather than deference to the authority of authors, processes that potentially shape adolescents’ dispositions to learn (Holschuh, 2000), comprehension (Reisman, 2011), and reasoning about text (Stanovich, et al., 2003).

Our work is also influenced by Norris and Phillip’s (2003) notion of *fundamental literacy*, where text processing itself assumes the form of argumentation:

*[L]ack of understanding is recognized; alternative interpretations are created; judgement is suspended until sufficient evidence is available for choosing among the alternatives; available information is used as evidence; new information is sought as further evidence; judgements are made of the quality of interpretations, given the evidence; and interpretations are modified and discarded based upon these judgements and, possibly, alternative interpretations are proposed... (Norris & Phillips, 2003, p. 229)*

This model aligns with Construction-Integration models of text comprehension, first developed by Kintsch (Kintsch, 1988, 1998; van Dijk & Kintsch, 1983; Goldman, Golden, & van den Broek, 2007).

Finally, our work is grounded in a sociocultural perspective that views literacy as a social practice situated in and mediated by settings, tasks, purposes, and other social and linguistic factors. Research from this perspective focuses on how students acquire argumentation literacy through participation in argumentation with teachers and classmates, and on how features of classroom life support and undermine the development of argumentation knowledge and strategies (Newell, et al., 2011).

### *Methodology*

The goal of the first phase of the READI design and research process was to build on the extant literature as well as “wisdom of practice” to inform the rapid prototyping of Evidence-Based Argumentation Instruction modules. To this end, during Year 1, we conducted observations of 77 lessons in 44 classes in the greater Chicago and San Francisco Bay areas where we believed teachers were engaged in instruction designed to foster disciplinary literacies in literature, history and science. For the Bay Area observations, from teachers who had participated in WestEd’s Strategic Literacy Initiative professional development, we identified experienced Reading Apprenticeship teachers in middle and high school whose literacy implementation in subject areas was believed to hold some promise to inform the development of new interventions (E-B AIMS).

Classroom observations were protocol driven. Consistent with a sociocultural perspective that focuses on how students acquire argumentation literacy through

participation in argumentation dialogue with teachers and classmates and on how features of classroom life mediate the development of argumentation knowledge and strategies, the observation instrument focused on three lesson components—texts, tasks and classroom culture.:

- *Texts* refer to the types of disciplinary texts used in the lesson, their instructional function in the lesson and the discipline, and the supports provided by the teacher. The term “text” is used broadly and refers to both traditional as well as electronic texts.

- *Tasks* refers to the nature, quality and purpose of the activities within the lesson and discipline, along with the types and degree of supports provided by the teacher for student completion of these activities.

- *Classroom Culture* refers to the nature and purpose of the participation structures and routines within the discipline as well as the general classroom climate and norms.

To standardize observed lessons and ensure that we witnessed literacy practices, we asked to observe typical lessons “in which reading and discussion play a central role.”

Observations were conducted by two observers, at least one of whom had expertise in the discipline of the observed lesson. Observers took detailed field notes, focused on both teacher instruction and student participation. Of particular interest were characteristics of classroom discourse.

Observed lessons were audio- and videotaped to capture classroom discourse for future analysis. Researchers also gathered lesson artifacts. In addition to observation data, information was collected through semi-structured teacher interviews.

### *Results*

Through repeated readings of field notes and other data sources, observations were coded for dimensions of classroom culture and activities, including text use, quality of literacy, argumentation and disciplinary knowledge tasks, participation structures, patterns of discourse, epistemological framing, and indicators of student engagement and learning. Table 1 lists some of the themes and practices related to the acquisition of argumentation literacy that emerged from this initial analysis.

Table 1: Themes and Practices Related to the Acquisition of Argumentation Literacy from Initial Constant Comparison Analysis

<ul style="list-style-type: none"><li>• Epistemological orientation that positions tasks and texts as inquiry, and promotes and facilitates students construction, representation and evaluation of knowledge</li></ul>
<ul style="list-style-type: none"><li>• Close reading characterized by approaching texts to understand vs. to find information</li></ul>
<ul style="list-style-type: none"><li>• In-class reading and comprehending that affords opportunities for teacher and peer support and collaborative meaning-making</li></ul>
<ul style="list-style-type: none"><li>• Reading routines, tools and strategies that support negotiation of meaning about texts and explicit connections between and across multiple sources</li></ul>
<ul style="list-style-type: none"><li>• Argumentation tasks assumed many forms, including inquiry as a tool for the construction and understanding of disciplinary knowledge and practices, tasks focused on teaching the language and structure of arguments, and tasks where attention to form was an outgrowth of argumentation inquiry</li></ul>
<ul style="list-style-type: none"><li>• Participation structures that support student ownership, agency, engagement and participation, and convey authority to students to shape the topic and conversation, evaluate ideas—i.e., to do the work of sensemaking</li></ul>
<ul style="list-style-type: none"><li>• Recursive cycles of whole class and group work that provide students opportunities to practice discipline-specific ways of discussing the texts under study</li></ul>

A major finding was the importance of attending to building blocks of E-BA as well as to examples of mature E-BA activities. While E-BA was easily recognized in explicit argumentation tasks, the roots of E-BA were likewise present in reading and discussion activities that required students to read with attention to evidence and interpretation, such as generating questions about a text, continuously revising a KWL chart as students read multiple texts on a topic, evaluating a source, or generating an essay topic and defending its importance with quotes from the text. These building blocks were often not framed by teachers in argumentation language.

In addition, our analysis revealed a close relationship between reading and E-BA. Much rich argumentation took place in the form of interactive argumentation during close reading and collaborative meaning-making (Chinn & Anderson, 1998). Multiple close readings of a text supported students in moving to more elaborated meanings required for mature E-BA. Students benefited from an initial reading for meaning, followed by subsequent readings focused on interpretive practices of the discipline.

To more systematically investigate how lesson texts, tasks and classroom culture may affect students' capacity to engage in evidence-based argumentation, using NVivo9 qualitative analysis software (QSR International), we carried out a close descriptive analysis of text and task Opportunities to Learn based on field notes, teacher interviews and lesson artifacts. Because Chicago data is still being processed, this analysis currently only includes the 40 Bay Area lessons.

One of the most interesting things to emerge from our close reading of this data is the different ways that argumentation was instantiated and taught in these classrooms, and the possible implications of these different approaches for student engagement, learning and dispositions to learn. The rest of this paper will focus on the descriptive analysis of argumentation Opportunities to Learn.

We defined argumentation tasks as tasks that asked students to make a claim or assertion that is supported by evidence that connects to the claim in a principled way, *whether or not the task was explicitly identified by the teacher as "argumentation."*

Our analysis incorporated a key distinction from the literature that also surfaced in our initial constant comparison analysis—i.e., whether tasks approached argumentation as an embedded social practice in the service of knowledge building (i.e., *arguing to learn*), or instantiated a formalist orientation concerned with *learning to argue* (Cavagnetto, 2010; Driver, et al., 2000; Newell, 2011):

- Arguing to learn: Argumentation as a tool for the construction and understanding of disciplinary knowledge and practices
- Learning to argue: Explicitly teaching language, structure and principles for argument and asking students to apply the structure to learn disciplinary argument

In the course of close reading, readers ask questions, clarify ambiguities, draw inferences from incomplete evidence and make evidence-based judgments. When these individual close reading processes are made public through discourse routines that encourage students to clarify confusions and figure things out, the resulting collaborative negotiation of meaning provides opportunities for *interactive argumentation*. Interactive argumentation that was a byproduct of negotiating meaning about text was not coded as argumentation if the task itself did not

explicitly solicit claims and evidence. However, because an initial constant comparison analysis suggested that interactive argumentation is a potentially important context for the development of more formal argumentation skills, we also looked at interactive argumentation in the observed lessons.

Table 2: Argumentation Opportunities to Learn

	Number lessons (N=40)	Percent lessons
Total argumentation:	24	60
• Arguing to learn	21	88*
• Learning to argue	3	13*
• Embedded learning to argue	7	29*
Interactive argumentation	35	88

\* based on subset of 24 lessons with argumentation tasks

Results of the descriptive analysis of argumentation opportunities to learn are shown in Table 2.

Twenty-four of the 40 observed lessons included tasks that explicitly required students to support a claim with evidence that connects to the claim in a principled way. The overwhelming majority were arguing to learn tasks, with a smaller number focused on explicitly teaching the language, structure and principles for constructing arguments. Seven argumentation tasks embedded elements of both arguing to learn and learning to argue. Most arguing to learn tasks were organized around a disciplinary question. Examples of these questions included: *Which union would you have joined if you had shared a workplace in the late 19<sup>th</sup> century?*; *What traits do you think the Aztecs admired or felt were useful to their society?*; and *How did countries use national pride to convince men to join the war?*

Interactive argumentation was nearly ubiquitous in these Reading Apprenticeship classrooms, likely because the teachers observed were members of an ongoing network engaged in implementing Reading Apprenticeship, which has a focus on collaborative meaning making, a similar construct.

According to the Toulmin model, every argument moves from data to the claim (Fulkerson, 1996). Hillocks (2010) describes this ideal, where potential claims surface from students' close reading and form the basis for disciplinary argumentation:

*When the data are curious, do not fit preconceptions, they give rise to questions and genuine thinking. Attempts to answer these questions become hypotheses, possible future thesis statements that we may eventually write about after further investigation (p. 26).*

Yet in the lessons we observed, formal argumentation tasks rarely arose from student-generated hypotheses or questions. Instead, teachers generally framed the question that was the focus of argumentation, and in some cases, teachers framed the claim itself. Learning to argue tasks tended to offer students the most limited role in shaping arguments. Research on argumentation suggests that simplifying the problem context may support students to engage in other aspects of argumentation in more complex ways (Berland & McNeill, 2009), and this could explain why learning to argue tasks in particular were characterized by more limited student choice than literary analysis and essay arguing to learn tasks.

We therefore looked more closely at the “argument context,” and whether the question that framed the argument was generated by the teacher, or arose from students' own reading and inquiry. Results from this analysis are shown in Table 3. We found that in 88% of argumentation tasks, teachers framed the question that was the focus of argumentation, and in 17% of argumentation tasks, teachers presented the claim itself, or provided two alternative claims, and students' participation in the argumentation process involved finding evidence to support a claim generated by someone else.

Table 3: Argument Context

	Number lessons (N = 24)	Percent lessons
Students determine correct answer from limited set of given possibilities	4	17
Students generate evidence for teacher-generated claim	1	4
Students select from two alternative teacher-generated claims, students generate evidence	3	13
Students generate claims and evidence from essential question (generated by teacher or students)	13	54
• Students generate question, claims and evidence	3	13*
Students evaluate author claim and/or evidence	3	13

\* Subset of 13 lessons in which students themselves generated research question

To illustrate how differences in “argument context” potentially mediate the development of argumentation knowledge and strategies, as well as student engagement and dispositions to learn, we turn to a lesson in a 9<sup>th</sup> grade history class that included two argumentation tasks—one driven by student inquiry, and one in which students responded to a teacher-generated question. The lesson is from an untracked class, although students in the class can choose to take the class for Advanced Standing (AS) or College Prep (CP) credit. We observed the class during a 88 minute block period. During the lesson, students read five World War I propaganda posters from countries on both sides of the conflict, including the following poster from Russia. The lesson was guided by the essential question: *How did countries use national pride to convince men to join the military?*



## Document B



The teacher structured the reading of individual propaganda posters around a double-entry evidence/interpretation notetaker—the left column is headed, *What Do I Know?*, and the right column is headed, *How Do I Know It?*

After a whole class reciprocal modeling of the first poster during which the teacher responsively guided students in identifying and recording what they knew and how they knew it, students read each poster with a partner, then came together as a whole class to discuss confusions and understandings in a teacher-facilitated whole class metacognitive conversation.

The notetaker framed the close reading task as an argumentation task, where, to paraphrase Hillock (2010), curious data that do not fit preconceptions give rise to questions and genuine thinking, and attempts to answer these questions become hypotheses. While the essential question was printed at the top of the notetaker, close reading was focused on sensemaking, rather than on this larger disciplinary question.

Following is a snippet of whole class conversation focused on Document B, a Russian propaganda poster with Cyrillic text and many unfamiliar symbols. The conversation followed close reading of the poster by partners, and was organized around lingering questions and confusions.

At this point in the discussion, students had established that the poster was Russian and that the bear represented Russia. The conversation then turned to the two

human figures and what they represented. We enter the conversation just after one student suggests that the figure in the white jacket is German, based on the hat.

Connor: I thought the other guy was German because he has the hawk on his helmet, and I thought that represents Germany because I have that schema. And the other guy in the white jacket represents Austria-Hungary, because it seems like they're on the same side, like the German guy wants him to go toward the Russian bear, but Austria-Hungary's like, 'I'm not sure if I want to do that,' 'cause they're, he's a bear, he figures he's stronger than they are. I'm thinking that Austria-Hungary's not as strong as Russia.

Teacher: Okay. Well that was a lot. Let's see if people want to add on. Because we've heard conflicting accounts, so we're going to keep going. David.

David: Well at first I thought it was like Germany was pushing Britain toward the bear so it was like they were trying to kill Britain or something. But now I think that it's like basically what Connor said.

Teacher: So you had an original hypothesis and you got some new information and you changed it? Okay. Kat?

Kat: I think it could be Russia and Germany because they border each other, so they would have definitely been like fighting.

Teacher: And who's who?

Kat: I'm not sure.

Teacher: Okay. Um, Joe.

Joe: Two things: You can tell by the way that the artist like does shadowing and shows how they're moving that the one behind him, whether he's Germany, is pushing that forward because his heels are in the air, or his feet, he's definitely struggling to not go. So it makes me think that Austria-Hungary was a little reluctant to get into the war. And then—I had something else to say [pauses, trying to remember]

Teacher: Okay, so you are again are saying this guy's Hungary and this is Germany. Why?

Joe: Well. Okay, I remember now. From my schema of all these other war comics, there's one person representing a country. And so basically this would be saying there's two countries, and since there's only one side that had two alliances primarily, that it would be them.

Students' interpretations drew on their knowledge of World War I from previous readings and lessons as well as their understandings of the propaganda poster genre. The teacher acknowledged each contribution, invited other perspectives and, when students did not spontaneously give reasons, probed, "What makes you think that?" The conversation was notable for its high level of participation and inclusiveness. Contributions reflected a wide range of prior knowledge and literacy skills. Students backed their thinking with reasons that ranged from "he has the hawk on his helmet, and I thought that represents Germany because I have that schema," to elaborate reasoned judgments based on the synthesis of multiple sources of information. Students demonstrated a willingness to revise their thinking as classmates presented persuasive evidence that challenged their initial interpretations.

Students engaged in close reading and sensemaking for over an hour, then reread the posters with a disciplinary focus on audience, message and purpose. Finally, during the last half hour of class, the teacher assigned a formal argumentation task that involved writing a paragraph to answer the essential question, *How did countries use national pride to convince men to join the military?*

#### Writing on Propaganda and National Pride

Today's Question: *How did countries use national pride to convince men to join the military?*

You will write a paragraph in which you answer today's question. You must include the following:

- A claim that answers today's question
- Two pieces of evidence. Each piece of evidence must include:
  - A description of the document
  - A parenthetical citation after the description of the (Document A)
  - The audience, message and purpose of the document
- Analysis of how the document would convince men to join the military

While this question was framed in terms of inquiry, it contained implicit claims that had not surfaced from students' own close reading of the curious data in the posters and had not informed their work with the posters in any way. Rather than invite students to develop and test their own hypotheses about the purposes of the posters, student participation was limited to generating claims and evidence for an argument unrelated to their own sensemaking. The epistemological frame of the lesson shifted from inquiry to procedural display (Jimenez-Aleixandre, et al., 2000), and previously engaged and thoughtful students became tentative and dependent.

After 5 minutes, during which the teacher moved from student to student to offer individual assistance, the teacher provided a sentence starter:

*Countries use national pride to \_\_\_\_\_ which made men more willing to join the army.*

For the remainder of the period, the teacher responded to raised hands, giving prescriptive advice, including verbatim language, aimed at helping students complete the assignment (e.g., T [Bending over student]: You would just say, one poster [inaudible]. One British poster shows [inaudible]).

### *Conclusions*

Past research suggests that tasks with a formalist orientation focused on argument structures and principles may hamper argumentation. Reznitskaya et al. (2007) speculated that “awareness of the rules, and the attempts to apply them, might have interfered with students’ ability and motivation to generate more argument-relevant statements, resulting in negative transfer” (p. 467). Similarly, our findings suggest that even among argumentation tasks focused on disciplinary knowledge building, engagement is higher and argumentation is more thoughtful when E-BA tasks involve genuine inquiry that maintains the inseparable relationship between understandings and the evidence that led to those understandings.

Our research suggests that interactive argumentation that takes the form of negotiating meaning about text rather than as formal argument, is a rich context for argumentation inquiry. This is particularly true when evidentiary thinking is supported by reading and discourse routines and tools like the double entry notetaker and facilitation routines in the lesson on the World War I propaganda posters. In the context of close reading, argumentation is limited only by creative and intellectual constraints of linking ideas to the reasons and evidence for believing them (Emmel, 1996; Gage, 1996).

Results from our classroom observation study thus underscore the importance of framing evidence-based argumentation as inquiry in the service of “discovering what (if anything) it is rational to believe about a topic” (Meiland, 1989)—or text. Associating argumentation with inquiry foregrounds “the ‘process’ of argumentation as one that may begin before one knows where to stand, as opposed to one that begins only when one is focused on justifying a stance already believed” (Gage, 1996, p. 5)—or justifying a stance that the teacher believed.

In the ultimate sense, argumentation is about getting to the bottom of things. As a society, we face problems that demand “serious and focused conversation among people who are intensely interested in getting to the bottom of things cooperatively” (Williams & McEnerney, n.d.). When we teach argument as evidence-extraction unlinked from the having of wonderful ideas—or effective or just or courageous ideas—we may encourage students to defend their own stance— at

best. At worst, we may teach them to dismiss evidence-based argumentation as irrelevant, formalist procedural display.

By requiring students to analyze, interpret, integrate, critique and evaluate information within and across multiple sources, curricular reforms emphasizing E-BA can potentially support all students to achieve high levels of academic literacy. However, just as literacy educators have long opposed teachers doing the work of comprehending for students, unless we are careful, curricular reforms that emphasize argumentation might potentially provide new ways to shortchange students. In the absence of pedagogies to support argumentation inquiry, the emphasis on argumentation risks escalating Matthew effects on literacy (Stanovich, 1986), increasing the gap between students who use argumentation as a way to come up with ideas and make up their own minds, and their less proficient peers. The results of this study suggest that E-BA can produce improved engagement and learning for students when it is embedded in the inquiry process. Subsequent analysis of this data will refine our understanding of factors that mediate the development of argumentation literacy.

We end with a word about the limitations of this research, which is preliminary. We are planning additional analysis of argument context using the full corpus of Chicago and San Francisco Bay Area data, to corroborate and expand findings reported here. Our initial analysis suggests that Chicago lessons differ from California lessons in a number of ways, so it will be interesting to see what emerges from this next phase of analysis.

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