3DL PARTNERSHIP
UNIVERSITY of WASHINGTON
School of Social Work & College of Education

Learning in the Disciplines

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To start our discussion:

- What disciplines do you consider to be areas of expertise?
- Think of some examples of knowledge and practices that are central to your field(s) of expertise.
- How did you learn these things?

Reflect on these questions (if you are alone) or share with a partner if you are in a group. Tally up the types of expertise represented in your group and use the chat window to tell us about them (e.g. 1 line dancer, 2 biologists, etc.) We will share how we learned about our areas of expertise after about 5 minutes of reflection/sharing time.

Orienting assumptions about disciplines

- Disciplines are cultural tools and ways of knowing that help us understand our world
- Disciplines focus on content areas (or particular questions) AND bring a set of perspectives and tools to the task of exploring these content areas
- Disciplines have histories
- We learn disciplinary practices from others, in many ways, sometimes explicit, sometimes tacit.
- As we learn, we shape not only what we think and know but who we are as people.

References: Schwab (1978), Shulman & Quinlan (1996), Stevens, Wineburg, Herrenkohl & Bell (2005)

History and science: Case examples of disciplinary learning in school contexts

- School settings often focus on the content areas (i.e. concepts and facts) but often do not explicitly address the tools that help generate knowledge and practices in particular disciplines (e.g. epistemologies)
- History and science (or more correctly *sciences*) can be viewed as sets of facts and concepts to be memorized, repeated or "applied" - not bodies of living knowledge and practices that are subject to revision and change
- Our work set out to bring one of the most powerful epistemic tools in history and science – argumentation – to the forefront of work in school settings so students could explicitly engage in creating knowledge and practices in history and science

What is argumentation?

THIS or THIS

Argumentation "is a mode of logical discourse whose goal is to tease out the relationship between ideas and the evidence" (NRC, 2007, p. 33)

What do you notice?

- The next slide has 2 examples of elementary student thinking, one from science and one from history. Choose one (or both examples if time permits) and on your own or with a partner think about the following questions:

- *What do you notice? What jumps out to you?*
- *Why do you think you noticed that? What do you think it means?*
- *What were the students trying to do?*
- *If you have experience working with elementary students, how does this compare to what might typically happen in an elementary science or history class?*

Examples of elementary student thinking in science & history

- Alex: If your theory was that heavier things will sink and lighter things float, it should always be like that? And it, but what, if you said like *sometimes* it'll float and sometimes it won't, and it still does that, I think it's still a good theory.
- Ennis: Yeah.
- Alex: Cause I mean, what, what, what if your theory….
- Alicia: [talking over Alex] You have to say it sometimes is. You have to say *why* it sometimes is.
- Alex: Yeah like, yeah like that.
- Alicia: The exceptions.
- Belinda: Um, I think that it should have to work every time because or else you might not know when it's working or not, your theory…
- Mrs. Garrett: Mm-hmm. Mm-hmm.
- Belinda: …because like lighter things float and heavier things sink, that's not always true.
- Alicia: And the first one, you say is your big theory, that's just a little [inaudible].
- Alex: Who said it was a big theory?
- Alicia: It's your main theory, right?
- Alex: No.
- Tyson: This is our main theory [gesturing to entire board].
- Alex: Yeah these, this-
- Alicia: The whole thing?
- Alex: Yeah.
- Tyson: Cuz we think she was tired *and* she was tired of being mistreated.
- Alex: Yeah.
- Rick: Is it both the [parts] or is it like?
- Alex: Both, like, she thought she was tired and she was tired of segregation. Like I could be wanting to eat ice cream and chips. [students laugh]

Argumentation Clusters

Coding Cluster	Coding Cluster Definition	Coding Cluster	Coding Cluster Definition
Alternative Arguments	Captures questioning of other's arguments including creating counter-explanations to account for the evidence, and deciding what the evidence could and could not account for.	***Formulating Arguments***	Captures "groundwork" involved in initially building an argument, i.e. drawing on prior knowledge, conducting impromptu experiments to test ideas, predicting & theorizing, controlling variables, sourcing, crosschecking, and engaging in discussions about whether particular factors should or should not be considered.
Arguments Do Not Need to Account for All Evidence	Conveys that arguments are not seen as complex constructs which must account for all of the evidence. Instead, they are used in a more specific or situational kind of way.	***Imaginative and Analogous Thinking***	Includes creating hypothetical situations, imagining and reconstructing the historical context or setting, reasoning by analogy.
Arguments Need Evidence	Explicitly discusses collecting and evaluating evidence as a necessary part of argument building.	***My Perspective***	Involves how participants used their own sensibilities, prior experiences, and expectations to explain how particular evidence would fit a particular theory. These conjectures were derived from a notion of "common sense" not from observed scientific or documentary evidence.
Changing and Revising Arguments	Includes references to revising arguments.	***Role of Debate and Inductive/ Deductive Reasoning in Argumentation***	Refers to a larger set of insights into the overarching process of building arguments in history and science. Includes implicit and explicit references to inductive and deductive reasoning and the relationship between debate and argument construction.
Cross-disciplinary Discussion	Comparisons across history and science as well as comparisons between the Promoting Argumentation Curricula and other subject areas/experiences (i.e. math and science, audience roles and reciprocal teaching)	***Truth Claims***	Conversations about the nature of truth.
Defining Argument as Theory Driven	Includes "meta" comments about arguments or theories: what they are, where they come from, what they should explain, how they should be constructed etc.	***What is Science/History?***	Discussions about the nature of the disciplines of history and science, the purpose of each discipline and the practices of those who are experts in the field.
Defining Terms	Operationalizing and giving meaning to terms discussed in class (other than argument which has it's own cluster)		

Features of Epistemic Cognition

Emergent Argumentation Clusters were aligned with Chinn et al's (2011) categories of epistemic cognition. All five of these components were located in the talk among teachers and students, indicating epistemically rich conversations around subject matter:

1) Epistemic aims and values
2) Structure of knowledge and other epistemic achievements
3) Sources of justification of knowledge
4) Epistemic virtues and vices
5) Reliable and unreliable processes for achieving epistemic aims

Promoting Argumentation

	Science: Sinking and Floating	History: Rosa Parks
Purpose of research study	Support and analyze students' emergent argumentation practices and disciplinary epistemologies in science and history	
Framing questions	Why do some things sink and some things float?	Where did RP sit? Why did she stay in her seat?
Sources of evidence	Sets of experimental objects of varying sizes, shapes and materials	Archive bin: 15 primary and secondary source documents
Curricular supports	SenseMaker boards Conference presentations Intellectual audience roles	

Sinking and Floating Objects

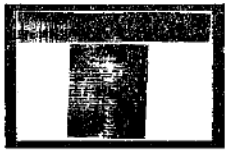
Rosa Parks Archive Bin

Documents

1. History of Us - textbook

2. I am Rosa Parks

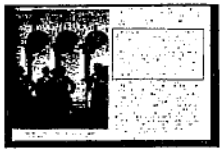
3. Police Report



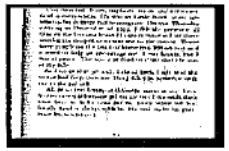
4. Montgomery Advertiser - newspaper

5. Rosa Parks: My Story account of arrest (p. 113-15)

6. Origins of the Civil Rights Movement



7. The Americans - textbook



8. Letter to Rosa Parks

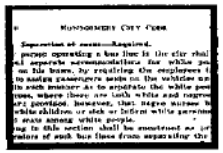
9. Photo of a segregated bus

10. Interview with Rosa Parks (the tape)

11. Photo of Rosa Parks on a bus

12. Rosa Parks: My Story the bus rules (p. 77)

13. The Afro-American - newspaper



14. Montgomery City Code

15. Freedom Hero website

Thinking like a scientist & an historian

THINKING LIKE A SCIENTIST

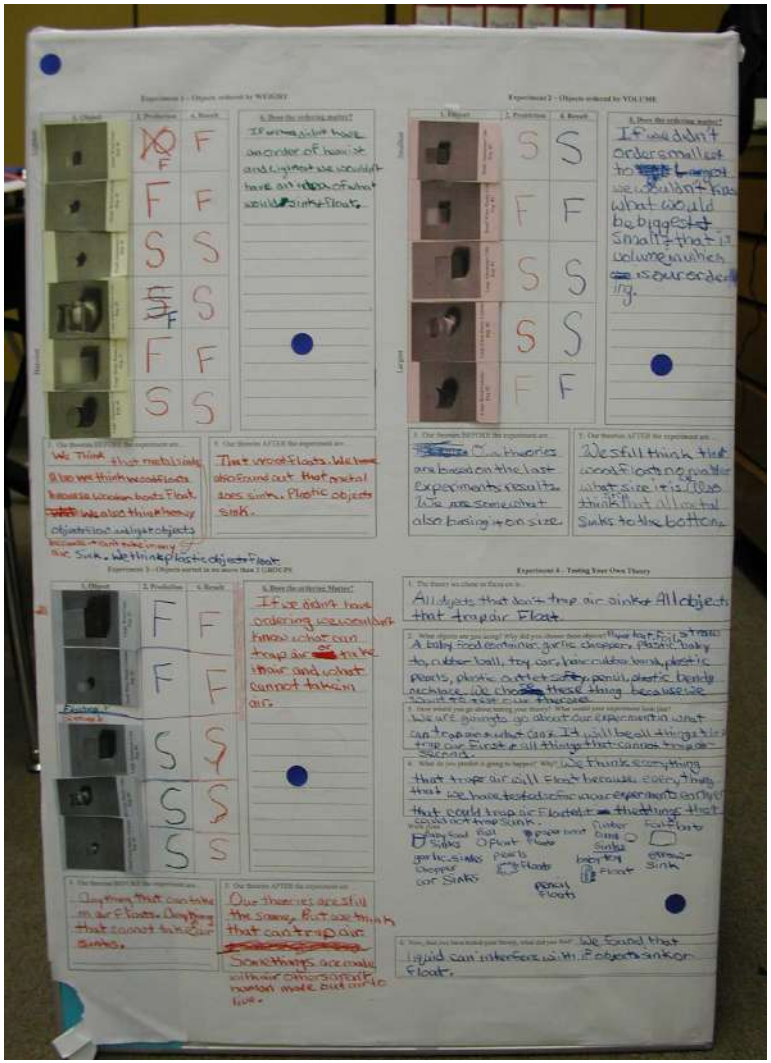
1. Predicting & Theorizing
2. Summarizing Results
3. Relating Predictions, Theories, & Results

THINKING LIKE AN HISTORIAN

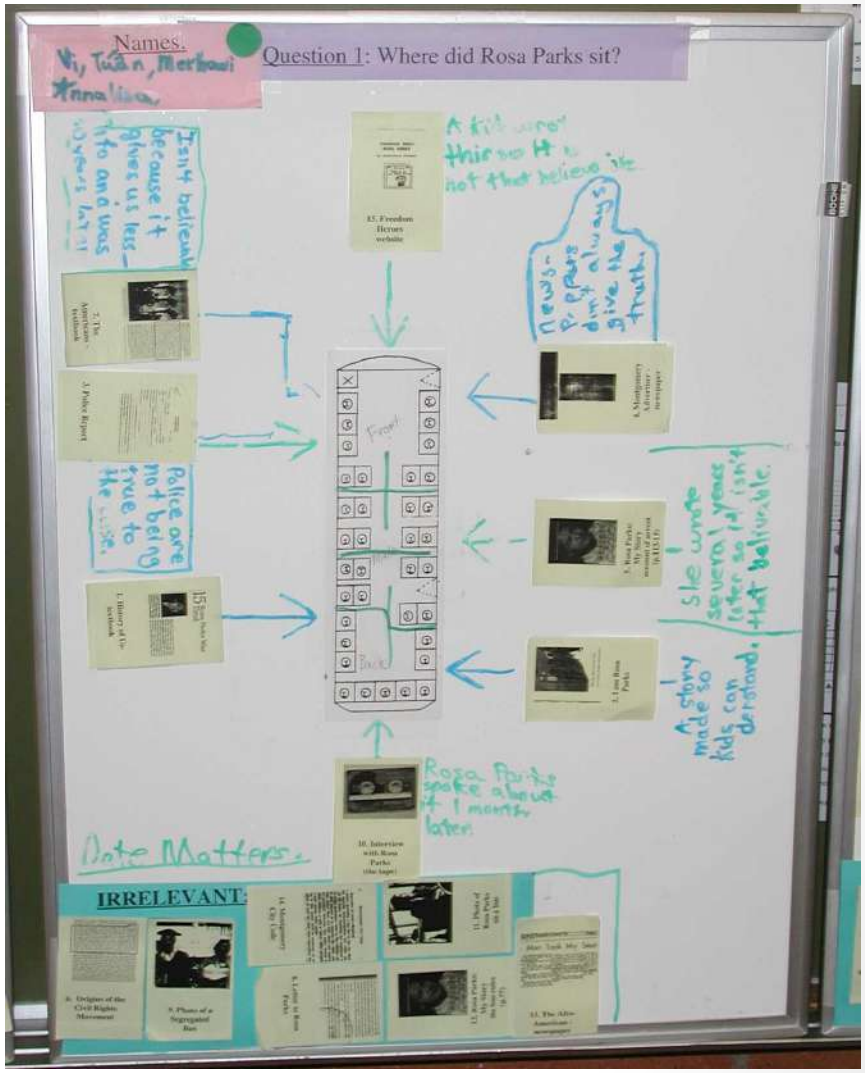
1. Sourcing
2. Cross checking
3. Imagining the Setting

SenseMaker

Science



History



Summary & Conclusions

We found that students in all our diverse urban classrooms had similar opportunities to engage in the practice of argumentation in history and science using a common curriculum with key tools and supports.

This was a bit of a surprise to us. Our initial reactions to "being there" in classrooms suggested that each one had a different "feel." A current manuscript (almost ready for submission!) explores how teachers' epistemological stances contribute to the emphasis they place on particular aspects of argumentation.

Our work in a larger frame…

- Our concern in doing this research was never to look solely at disciplinary thinking, but to explore disciplinary thinking as a space for students to emerge as thinkers and people in school contexts:

  "What this study does that differs from previous research, however, is analyze power not only in terms of the social relationships that exist in classrooms, but also in terms of the disciplinary relationships, and we do these two analyses in tandem." (Cornelius & Herrenkohl, 2004, p. 495)

  "We take the approach that engaging students of science, engineering, and technology is a matter of developing people while expanding their knowledge and skills." (Herrenkohl & Mertl, 2011, p.2)

- To find out more about current work and partnerships see the new UW effort to establish a community hub for academic, social, and emotional learning, ***The 3DL Partnership: Innovations in Three Dimensional Learning***

https://education.uw.edu/people/faculty/leslieh - profile-faculty

http://depts.washington.edu/threedl/

Relevant References

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