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# When is a Game not 'Just' a Game: Introducing Climate Change and Information Fluency in a First-Year Engineering Course

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## Abstract

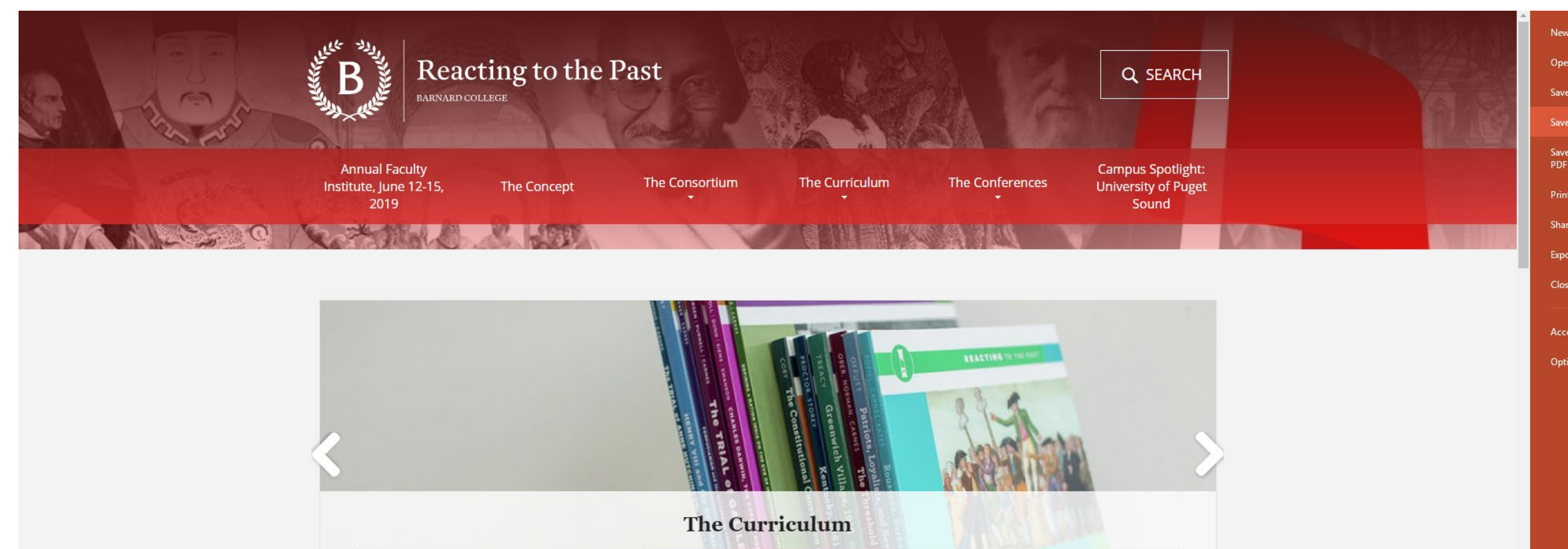
Are you looking to shake up your library instruction? Tired of the usual one-shot? At Merrimack College, faculty-librarian collaborators introduced information fluency skills to first-year engineering students (Civil, Mechanical, and Electrical) while they participated in a role-playing exercise recreating the UN Climate Talks of Copenhagen in 2009. The exercise is part of a series of published games called *Reacting to the Past*, which immerse students in a given event or topic. In this case, the goal was for students to further their understanding of the “wicked” technical and interdisciplinary aspects of modern issues such as climate change, including politics and social aspects. Students also learned and practiced researching a topic, selecting and evaluating sources, properly citing sources, debating (civilly!), and writing. The collaboration was between librarian and faculty instructor, but also among students working together and in opposition to develop a global agreement addressing climate change.

This was the first time this faculty-librarian team moved from a one-shot to an embedded model. The librarian participated in class throughout the semester as well as provided linked library programming (Environmental Movie Nights) for the students and others outside of class. The long-term nature of this project meant that via continuous assessment, the team could re-teach skills as needed. Having the librarian fully embedded was a great way to start a relationship between the students and the library and librarians - highlighting the link between fieldwork and research skills, while demonstrating best practices to employ as they complete research projects in their degree program.

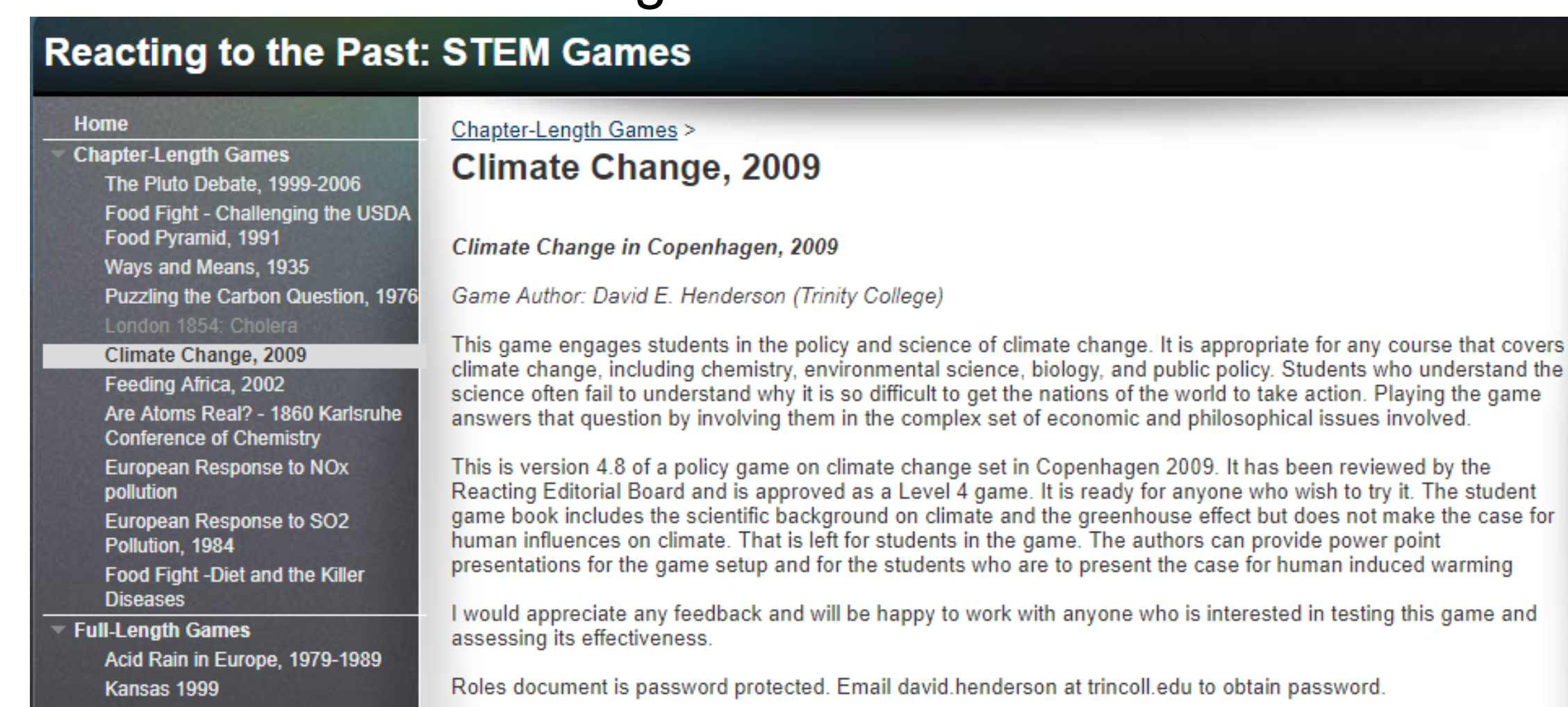


Students, acting as UN leaders, run the climate change debate.

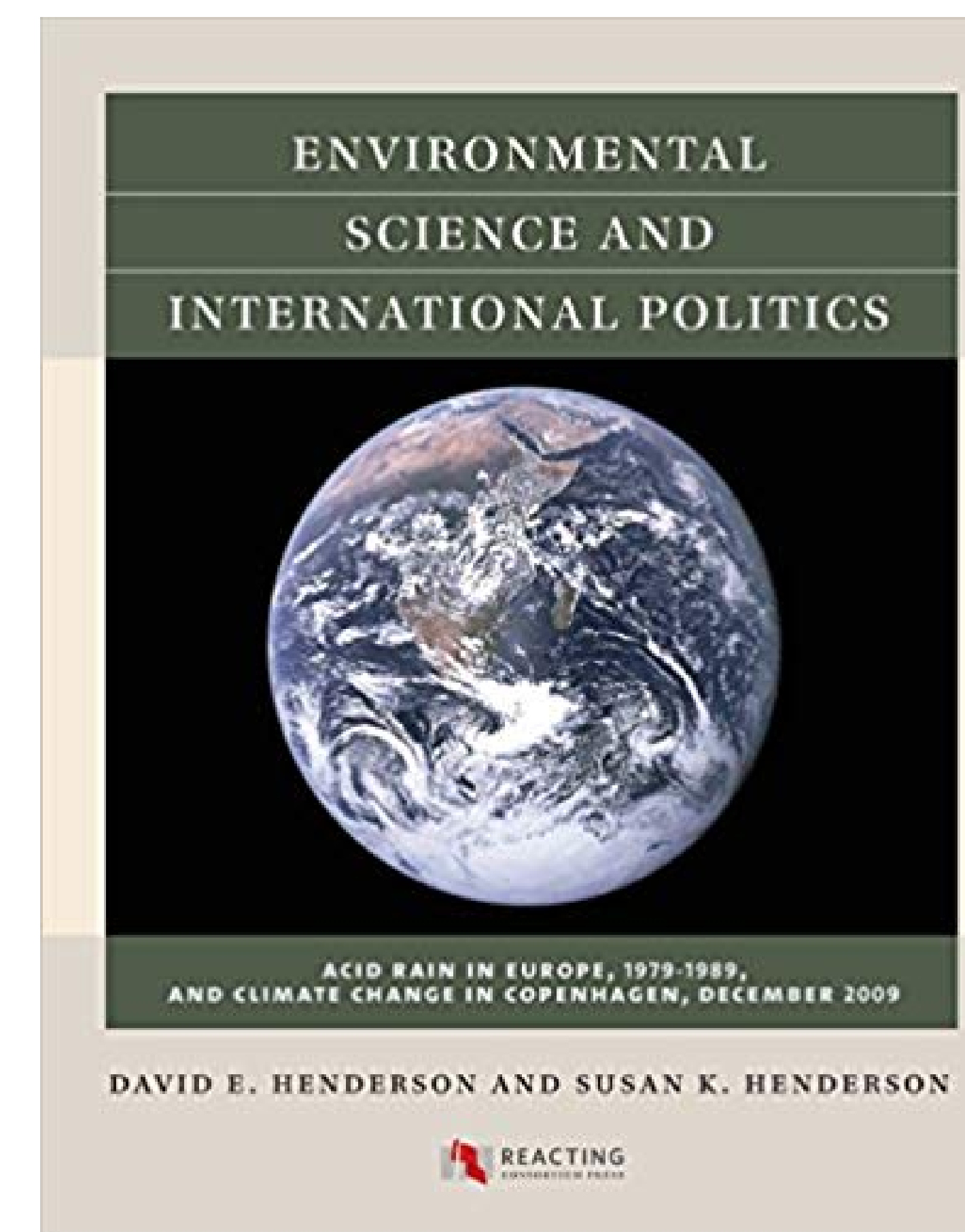
## Reacting To The Past



Reacting to the Past: Website



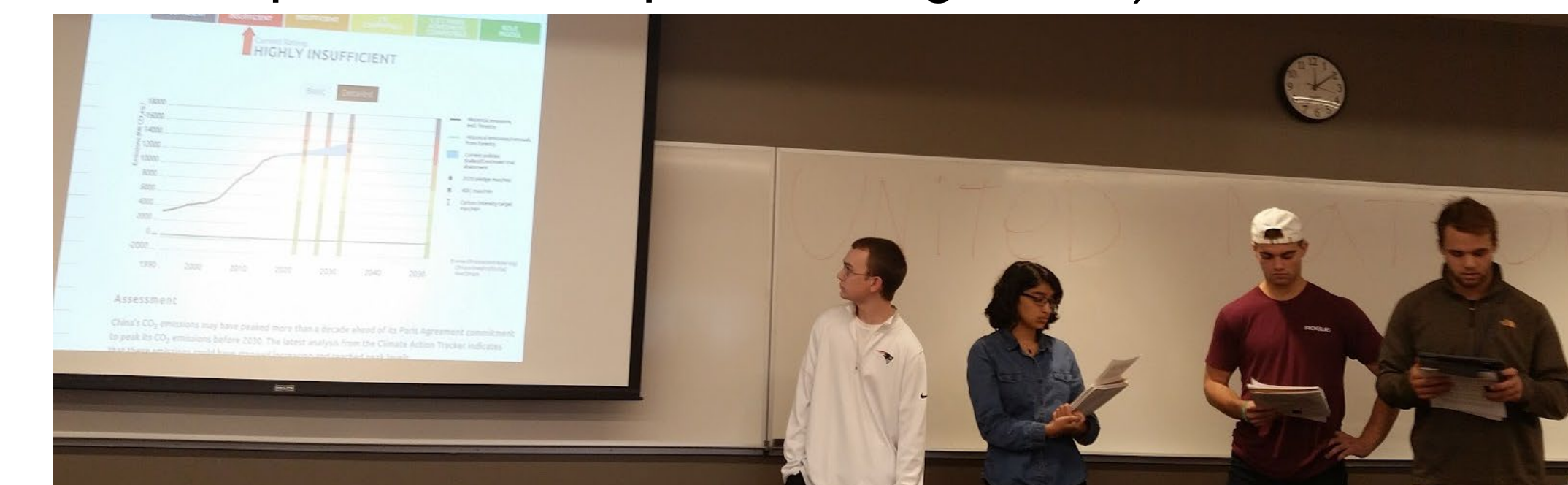
Reacting to the Past: STEM Games



*Environmental Science and International Politics*  
David E. Henderson

## Embedded Librarian

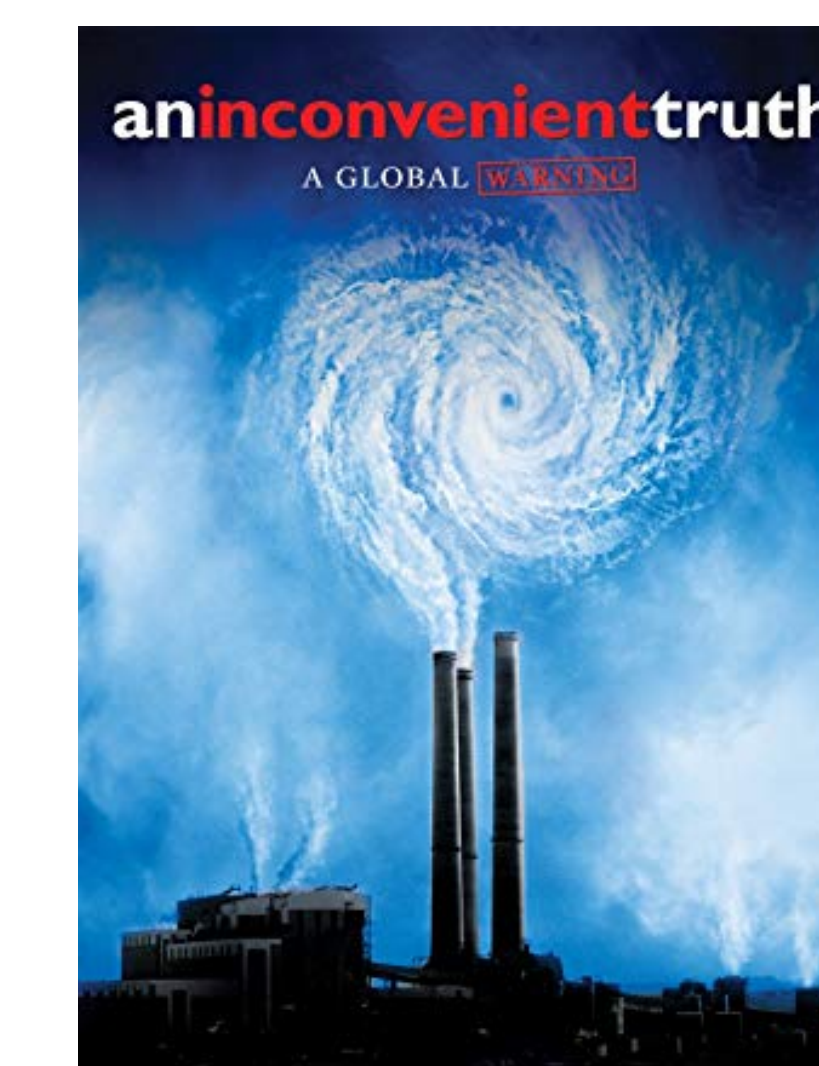
- Librarian attended class as schedule allowed.
- Librarian conducted 2 in-class workshops during the semester and helped create and grade relevant assignments.
- Students were encouraged to make an appointment with librarian to prepare for their role in the game and for help with other assignments (Windmill Competition & Proposal Assignment).



Students, acting as non-profit leaders, present and interpret climate data.

## Library Programming

Environmental Movie Nights forged added collaboration. The first two library sponsored movie nights were specifically selected to engage the engineering students in the materials outside of class.



## Learning Gains

The SALG (Student Assessment of Learning Goals) assessment was used to understand how students perceived their learning. Open-ended responses included:

- “I learned how an engineer is expected to relay information.”
- “I learned communication skills and how to write a paper based on statistics
- “Critical thinking and finding quality information”
- “I don't think I learned any new skills other than what I already know.”
- “No skills”
- “I have gotten over my fear of giving a presentation. I learned different styles of engineering. The importance of units. How to properly right and cite sources. how to build a windmill. But the number one thing I learned about engineering is that it is okay to make mistakes.”
- “Learned how to use APA citation.”

**Table 1. Likert Skills Assessment.**

**As a result of your work in this class, what GAINS DID YOU MAKE in the following SKILLS?**

Skill	1:no gains	2:A little gain	3:moderate gain	4: good gain	5: great gain	Mean	N
Finding articles relevant to a particular problem in professional journals or elsewhere	4%	6%	23%	23%	15%	3.5	71
Critically reading articles about issues raised in class	6%	4%	17%	14%	14%	3.6	70
Recognizing a sound argument and appropriate use of evidence	7%	4%	13%	28%	19%	3.7	71
Citing references appropriately	5%	4%	15%	26%	21%	3.8	71
Understanding how to determine the academic quality of a source	6%	5%	13%	29%	18%	3.7	71
Using the library resources available for Merrimack students	3%	11%	12%	23%	22%	3.7	71
Working effectively with others	4%	9%	7%	24%	27%	3.9	71

## Impacts & Conclusion

Average self-reported gains were approximately “good” (Table 1). Some students were vocal about not seeing the link between climate, politics, research, and engineering. This re-enforced the instructors’ belief that teaching these links to first year students is vital. Engineers will be required to understand statistical data and communicate with a wide range of people. We will strengthen the links in future years.



Students, acting as national leaders, discuss options.