

STS Postures

skills, mindsets and behaviors
for becoming an STS thinker

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We see how we hold ourselves (literally our bodies) in relation to each other, STS, science and technology as key to having agency in the future of science and technology. Our program is set up to help STEM students to feel like they have agency to change the status quo. This comes out in how we teach and try to position ourselves among the students not in front of them. It also is about translating STS in ways that help them become agents of change. And building skills that give them the tools to do this. We will show you how play is just one such posture that helps us critically interrogate S&T, but also how we teach STS, and how we conduct ourselves as teachers.








STS Scholars: Systems Thinking












Building student capacity to understand self and others as a foundation to improve collaborations for constructing high performing, resilient systems.

Systems thinking through collaboration. We like to play. Here we are on an STS bike ride through a local community exploring technological systems that support us - namely infrastructure. I would like to note students using their wonder twin powers activate super power to imagine a more resilient community.

STS Thinker Skills

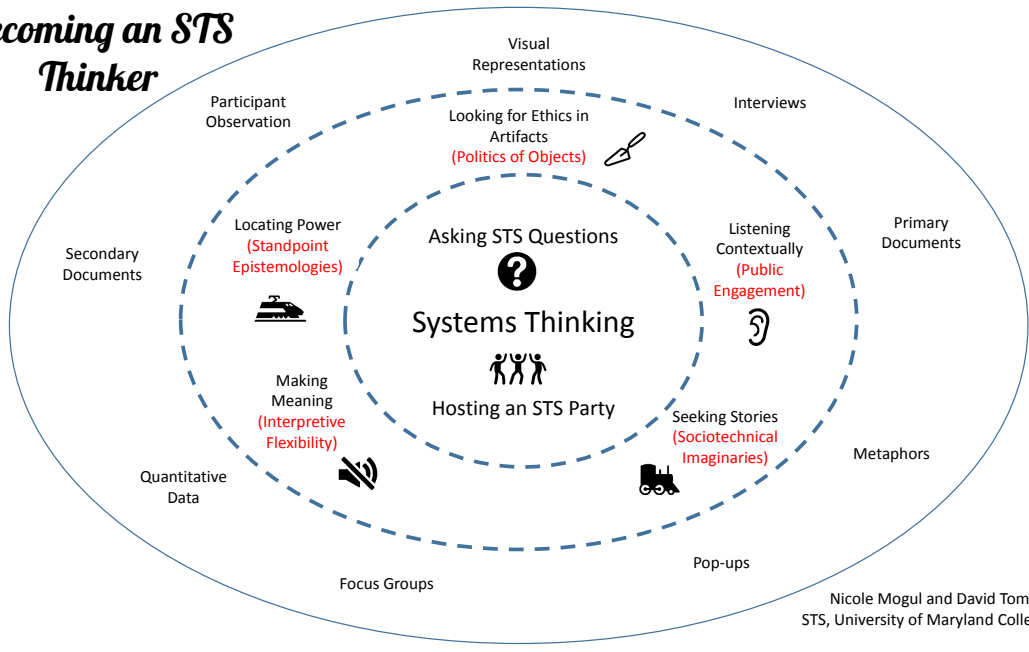
-  Looking for ethics in artifacts
-  Listening contextually
-  Making meaning
-  Seeking stories about S,T&E (past, present & future)
-  Locating power
-  Asking STS questions
-  Hosting STS parties

Data Collection Techniques

-  Primary Documents
-  Secondary Documents
-  Quantitative Data
-  Visual Representation
-  Interviews
-  Pop-ups
-  Observation & Participant Observation
-  Metaphor Analysis
-  Focus Groups

Story about how we came to these.

Becoming an STS Thinker



Nicole Mogul and David Tomblin
STS, University of Maryland College Park

An STS Posture: Play



AIE STS Team Slide – Cambridge Space Community Community

So we just talked about how we have mindsets and skills that exemplify a re-orienting of our posture toward STS, ourselves as teachers, and students. Here we talk about behaviors. How we move and actually hold ourselves in the world. PLAY is a posture that brings a critical stance toward the hard, serious logic of STEM. It helps erode that serious core and not take it so seriously, but also begin to take seriously its extended consequences.

Example 1: What is your STS Superpower?



Alondra Nelson



Locating Power in Systems

Super Power = Locating Power in Systems [This activity not only helps students situate systems thinking in their careers, but also can be used to subtly explore the intersection of race, gender, and institutional power]

Assignment: Systems Thinking as “Superpower”

1. Choose someone, real or fictional (e.g. a mentor, a movie hero, a parent, etc)
2. Which systems thinking skill does this individual embody, and how?
3. Post a picture or drawing. Write a caption that describes how this skill gives them superpowers.

STS Thinker Skills



Looking for ethics in artifacts



Listening contextually



Making meaning



Seeking stories about ST&E
(past, present & future)



Locating power



Asking STS questions



Hosting STS parties

1. Josue, one of my friends, is someone who is a very active leader in his school's hispanic heritage club.
2. Through his initiative and passion for his culture, he actively organizes events and fundraisers, as well as lobbies his school's leadership for more representation, and because of this I believe that his superpower is Hosting STS Parties and Locating Power In Systems.

Timnit Gebru is a leading researcher in ethics in AI. For that reason, I think she embodies the skill of Looking for Ethics in Artifacts.



This skill gives her superpowers because it lets her uncover ethical issues in such a new and developing field, such as AI. It's also an integral part of her job. She co-authored a groundbreaking paper on how facial recognition AI is less likely to detect people of color. This paper exposed a huge problem with facial recognition.

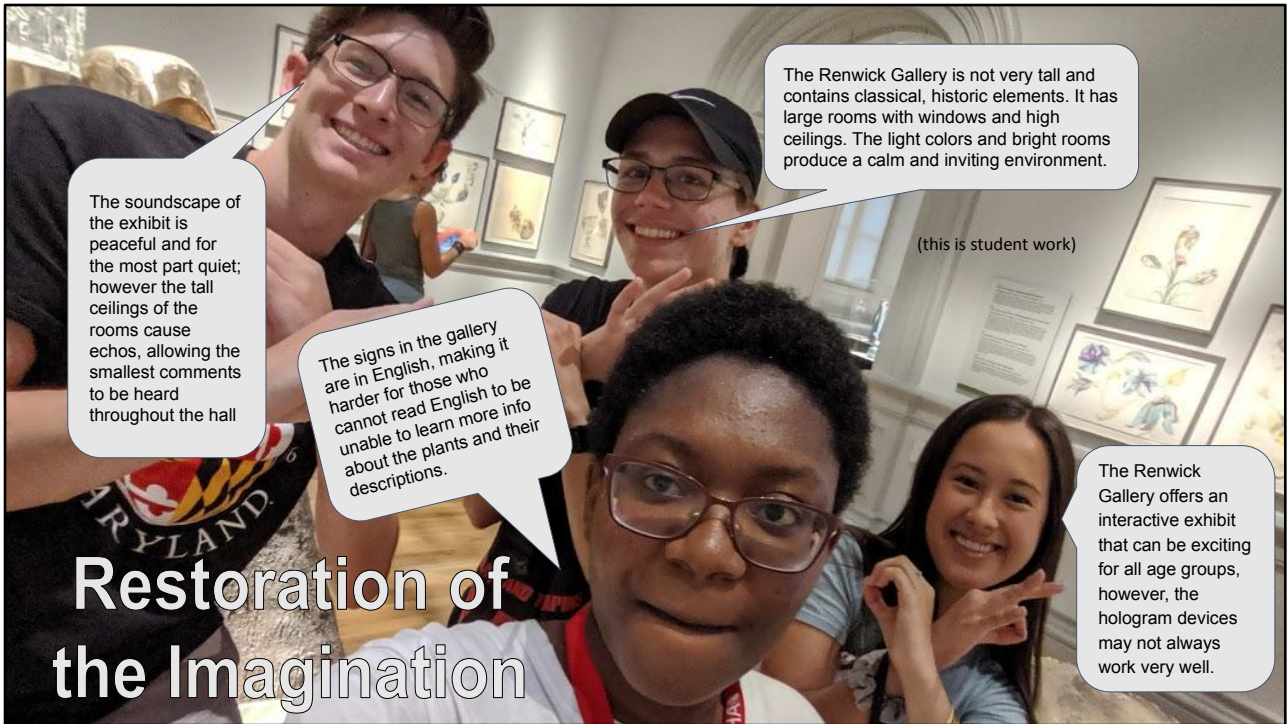


Exploration the intersection of race, gender, and institutional power

Example 2: Community Futures
(Finding Ethics in Artifacts)



**030 Gang's
Scavenger Hunt**



The soundscape of the exhibit is peaceful and for the most part quiet; however the tall ceilings of the rooms cause echos, allowing the smallest comments to be heard throughout the hall

The signs in the gallery are in English, making it harder for those who cannot read English to be unable to learn more info about the plants and their descriptions.

The Renwick Gallery is not very tall and contains classical, historic elements. It has large rooms with windows and high ceilings. The light colors and bright rooms produce a calm and inviting environment.

(this is student work)

The Renwick Gallery offers an interactive exhibit that can be exciting for all age groups, however, the hologram devices may not always work very well.

Restoration of the Imagination

Soundscape, signs, buildings, social spaces, traffic



What does Washington D.C. mean to you?

D.C. is a special place where most people grew up in different areas, so we can come together to share each others' perspectives and learn new things.

Example 3: Role Play

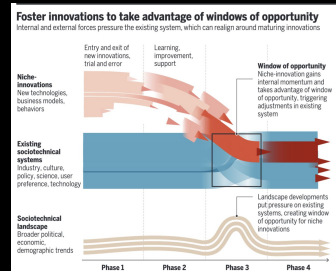
Ingredients

- Event: e.g. Texas Power Grid failure
- Roles: one or two per student, depending
- Geels FW, et al. "Sociotechnical Transitions for Deep Decarbonization." *Science (New York, N.y.)*, vol. 357, no. 6357, 2017, pp. 1242–1244., doi:10.1126/science.aao3760.

(is much easier to set up than you might think)

Directions

- In person, show students their role for the next class period and assign Geels
- Students should come to next class:
 - prepared to identify where their character fits into this graphic
 - ready to give a "tour" of one place their character knows.



Example 4:

[YOUR PHONE IS CALLING]

30 minutes • Serves 2-100

Recipe created by [Nicole Mogul and David Tomblin]








Ingredients

- [Place] Classroom
- [Artifact] Participants' personal cell phone
- [Concept] Finding ethics in artifacts
- [Flocking} Open coding
- [Script Rewritten] Making meaning
- [Additional Ingredients] White boards, google slides, chalkboard, or giant post-its
- Markers, chalk, etc - different colors is great!

Cooking Directions










1. Participants have a way of writing & understand what they are writing will be public.
2. "Put your cell phone somewhere you can see it, and imagine for a moment that it can speak. During this activity, when I say go, you will write down everything the phone might be saying to you, For example..
3. 3-2-1 Go!
4. Stop! Now exchange what you have written with a partner.
5. Label your partner's work in any way you see fit.
6. Label your partner's work with categories you identify For example...
7. What categories emerged? How did yours differ? What observations do you have?

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What skills or techniques connect to this activity?

Data Collection Techniques

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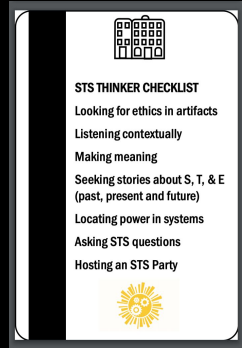
Created by Gregor Cresnar
from Noun Project



Your Special Ingredient:
Artifacts That Speak

The “Key” to STS

one side



other side

(If you could hold this, you'd might perceive it as a swipe card.)