

Criticism of systems of oppression through the lens of a Biomedical Science course: working in the classroom to improve public health and society overall.



Author: Alyssa Sandner, Tamalpais High School, Mill Valley, CA Mentors: Walt Woolbaugh, Nina Portugal, Dana Skorupa
Departments of Ecology and Education, Montana State University, Bozeman, MT

Driving Questions

- Using strategies of culturally responsive teaching, how can I shift my means of assessment?
- What are student's impressions on using performance tasks vs. traditional assessment as a means of determining understanding?
- How do students challenge misconceptions and develop their original thought when talking about the intersectionality of -isms (race, gender, etc.) & public health?
- How do my students of color see their identities and societal progress in these performance task assessments?

Classroom Sample Population

Biomedical Science focuses on student experiences with medical science as well as professional medical simulations

With a total of 21, these students are:

- All upper classmen
- Enrolled in this voluntary elective
- Most students identify as white, three are students of color.

		The Knowledge Dimension			
		Factual	Conceptual	Procedural	Metacognitive
		(The basic elements a student must know to be acquainted with a discipline or solve problems in it.)	(The interrelationships among the basic elements within a larger structure that enable them to function together.)	(How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods.)	(Knowledge of cognition in general as well as awareness and knowledge of one's own cognition.)
The Cognitive Process Dimension	Create	Generate a log of daily activities.	Assemble a team of experts.	Design an efficient project workflow.	Create a learning portfolio.
	Evaluate	Check for consistency among sources.	Determine relevance of results.	Judge efficiency of sampling techniques.	Reflect on one's progress.
	Analyze	Select the most complete list of activities.	Differentiate high and low culture.	Integrate compliance with regulations.	Deconstruct one's biases.

Figure 1: A model of learning objectives-based on a revision of Bloom's taxonomy. The starred categories are the two metacognitive dimensions targeted to develop critical thinking. presented by Iowa State (Anderson, 2001)

	Below Basic 5/20	Developing/ Basic 10/20	Proficient 15/20	Advanced 20/20
Perspective - provides your reader with the connection to people who are affected. There many different walks of life that are affected by public health. The more experiences you cite make your designed solution more effective. This is also where you should draw on key ideas and concepts from your issue you are working to solve.	-Does not provide perspective, only provides unrelated perspective, or personal perspective only.	-Provides perspective that connects very few experiences with the solution design. -Does not provide full understanding of the population affected and how the designed solution provides better public health.	Explanation provides perspective that is... -Clear (Clearly communicated and goes beyond one's own experience. -Connected (using objective language, explains why the experiences are important or why it is relevant in this particular case) -Integrated: broadly or vaguely connects scientific concepts, societal structures, and vocabulary to support understanding of why the reform is valuable. -Mentions experiences but does not connect it well to the solution's design.	- Exhibits that research has been completed about many perspectives involved (with citations) to explain why the experience affects the solution suggested. -Reasoning shows full depth of content understanding with -Innovative/ justified systemic reform ideas.

Ideal Outcomes Post Analysis

What I want for my white students in this process:

- Slowing their thought process when approaching a task related to equity
- Being less philosophical when talking about race, using accurate evidence rooted in story.
- Isolating race as to center people and experience, acknowledging "gaming" of the system
- Acknowledge historical oppression and medical violations of the rights of people of color
- To see that advocacy and compassion are necessary components of working as a medical professional.

I ultimately want to see similar awareness from my students regardless of skin color. As for the three women of color in my class, I want them to witness their peers engage in respectful discourse with a deep understanding.

Overview of Focal Student Performance

Case Study Student Scores

Student	Public Health (Unit 1)	Immunologist (Unit 2)	DNA Technologist (Unit 3)
Renee	35	32	38
Serena	40	40	40
Allison	38	35	38
Ben	40	40	40

Figure 2: In order to analyze my class's performance, I selected four focal students to focus upon

Renée is a Filipina female senior who lives in a low SES community. I had her as a freshman first and pushed for her assessment that led to her current IEP.

Serena is an African American senior who also lives in a low SES community. Serena has a GPA of 3.24

Allison is a white, well meaning, very privileged child. Allison has a cumulative GPA of 4.22 as a senior. Helping Allison explore perspective was my biggest challenge in this project.

Ben is an openly queer white male student in my Biomedical Science class. He is currently a junior and has a 4.38 GPA. Ben's responses represented a solid understanding as well as a comprehensive allyship for oppressed populations.

Student Quotes and learning artifacts

Serena: "...things will always be hard for people of color. Things were already hard for POC before this happened. As it was hard for POC to get access to COVID testing and hospital services."

"Public health doesn't serve everyone completely. If you have wealth and tons of money it is easy for you to get health care, if you are under privileged it is harder to get health care."

Allison:

Figure 3: This is a picture of Allison's response to the metacognitive Evaluate/Analyze question related to inequitable COVID infection rate.

Discussion

In this experience I was able to pose rigorous critical thinking questions connecting societal inequities and medical technology. Ultimately my students of color were able to see their communities in the assessments and share moving responses looking toward a more just future in public health. In conjunction, I observed a few academically successful white students struggle as they were unable to dissect themselves within these assessments and pushed against analysis of decentering whiteness in medicine. Overall this experience was successful and many of my students gave the assessments praise.

Future Considerations

In medicine, ethics is one of the top considerations when working with patients and formulating solutions for real life problems. Ignoring the context and nuances of the people who will benefit or suffer from medical technology or processes in the classroom allows an avoidance of acknowledging whiteness and the potential harm it causes to POC. I feel it would be a disservice if I were to stop teaching this understanding, and I will revise my assessments to emphasize complex reflections over rote acquisition of content.