

Supplemental Material

CBE—Life Sciences Education

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SUPPLEMENTAL MATERIAL

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Additional File 1: Survey questions analyzed

Science identity

Please indicate how strongly you agree or disagree with the following statements (strongly agree to strongly disagree, 5-point scale)

- I am a "science person"
- My family thinks of me as a "science person"
- My friends think of me as a "science person"
- My teachers/instructors think of me as a "science person"

Demographics

Is your major in biology? (includes biomedical sciences, biology and society, conservation biology, genetics, neurobiology/physiology/behavior, microbiology, medical microbiology, molecular bioscience, neuroscience, biochemistry)

- Yes
- No
- I'm not sure (please describe):
- Decline to state

What is your current year in school?

- First Year/ Second Year
- Junior/Senior
- Graduated
- Didn't graduate but no longer attending

What is your intended career?

- Healthcare professional (examples: Physician, Nurse, EMT)
- Research scientist (examples: Professor, Biologist, Chemist)
- Option not available, please describe:

I most closely identify as:

- Man
- Woman
- Nonbinary
- Please describe your gender identity if the best option is not listed:
- Decline to state

Choose the race/ethnicity with which you most closely identify. (Select all that apply.)

- Asian (East Asian, Southeast Asian, South Asian, West Asian, Middle Eastern)
- African American or Black
- Latinx or Hispanic
- American Indian, Native American, or Alaskan Native
- Native Hawaiian or Other Pacific Islander
- White
- Multiracial (please describe your multiple racial/ethnic identities)
- Option not available, please describe:
- Decline to state

Please indicate your political identity.

- Extremely Liberal
- Liberal
- Slightly Liberal
- Moderate
- Slightly Conservative
- Conservative
- Extremely Conservative
- Decline to state

I most closely identify as:

- Buddhist
- Christian (for example, Catholic, Protestant, Orthodox, CJC-LDS, nondenominational)
- Hindu
- Jewish
- Muslim
- I don't identify with a religion (for example, atheist or agnostic)
- Option not available, please describe
- Decline to state

Additional File 2: Interview questions

1. Can you tell me about your racial or ethnic background? To what extent do you consider yourself a part of Black communities? How often do you spend time in Black communities?
2. On the survey, you listed ____ as the extent to which you identify as a science person. Why is that?
3. How often do you discuss COVID-19 or COVID-19 vaccines with those in your community?
4. Who in your community do you discuss COVID-19 and COVID-19 vaccines with the most? Is there anyone in your community that you avoid talking with about COVID-19 and COVID-19 vaccines?
5. Can you describe experiences, if any, you've had discussing COVID19 or the COVID19 vaccines with your friends? Family at home? Church community (only if the student has stated that they are religious)? Other college students?
6. How, if at all, do you feel like your identification as a scientist influences how you communicate to those in your community about COVID19 or COVID19 vaccines?
7. How, if at all, do you feel like your racial or ethnic background influences how you communicate to those in your community about COVID19 or COVID19 vaccines?
8. Can you tell me about how you've experienced the COVID19 pandemic? How has your community experienced the COVID19 pandemic?
9. Do you wear a mask more, less, or about the same as others in public? Why or why not?
10. Did you get the COVID19 vaccine? Why or why not? Were you at all hesitant? How did you decide to receive the vaccine (or not)?
11. How do you think Black communities have experienced this pandemic differently from other communities?

12. Can you describe, if any, experiences in which you have learned about COVID19 in your classes? How, if at all, have these experiences impacted your confidence communicating about COVID19 to those in your community?
13. How do you think instructors in your biology classes could help you feel more confident in communicating about COVID19 to those in your community?
14. Do you think that historical discrimination towards Black communities affects the way they approach or handle COVID19 mitigation and vaccines? If so, how?
15. What do you think would make people in Black communities more comfortable with masks and vaccines?
16. Can you think of anything else that would help you feel more confident in discussing COVID19 and COVID19 mitigation, including vaccines?

Additional File 3: Coding rubric

Presenting Facts: Student discusses COVID19 and COVID19 mitigation with Black communities using facts to emphasize the importance of receiving the vaccine.

Showing care: Student discusses COVID19 and COVID19 mitigation with Black communities by showing care to the other person.

Influence: Student describes that they were able to convince others in Black communities to receive the COVID19 vaccine

Not an influence: Student described not being able to convince others in Black communities to receive the COVID19 vaccine.

Avoidance: Student avoids or stops discussion of COVID19 and COVID19 mitigation with people who are hesitant. This includes students who state that others have already made up their minds about COVID19, feel like their opinions won't change, or want to avoid conflict.

Unsure what to say: Student states that they didn't know how to communicate COVID19 with some members of Black communities who are hesitant.

Friends and family: Student mentions that they most frequently communicate about COVID19 and COVID19 mitigation with their friends or family.

Understands the hesitancy: Student explains that they understand why Black communities are hesitant about the vaccine. This includes students who state that they were once hesitant to receive the vaccine themselves, or who describe that historical discrimination towards Black communities' influences vaccine hesitancy.

Misinformed: Student states that members of Black communities do not understand or are misinformed about COVID19 and COVID19 vaccines.

Perceived lack of data: Student describes that members of Black communities do not feel like there is enough information about the vaccine.

Role model: Student states that Black communities would be more accepting of the COVID19 vaccine if they received information from others in Black communities /people they trust.

More informed: Student states that Black communities would be more accepting of the COVID19 vaccine if they were more informed about COVID19.

Frustrating: Student describes that the hesitancy in Black communities is frustrating or sad.

Distrust: Student explains that Black communities are hesitant to receive the COVID19 vaccine because they do not trust the government and/or science.

Knowledge: Student states that their science identity influences how they communicate about COVID19 because they understand the science and can relay that information to others in their community.

Responsibility: Student states that their scientific identity makes student feel like it's a responsibility to explain science as someone in the science community.

Understanding: Student states that their racial or ethnic background influences how they communicate about COVID19 to Black communities because their identity helps them understand what Black communities go through and thus how they should communicate to them

Learned about COVID19: Student mentions that that they learned about some aspect of COVID19 in their biology class. This includes those who mentioned learning COVID19 facts, as well as those who learned about values relating to COVID19.

Did not learn about COVID19: Student mentions that they did not learn about COVID19 in their biology classes.

Changed perceptions: Student describes that learning about COVID19 in their class changed their perceptions of COVID19.

Learning facts improved communication: Student describes that learning about COVID19 in their class positively influenced how they communicate about COVID19 and COVID19 mitigation to Black communities. This includes students who state that they learned more about the science of COVID19 and COVID19 vaccines or learned how it impacts communities, so they were able to discuss this information with others in their community.

Learning facts did not influence communication: Student reports that their biology class did not influence how they communicate COVID19 and COVID19 mitigation to Black communities. This includes students who state that they learned about COVID19 in their class but it did not impact their communication.

Implement COVID19 in curriculum: Student recommends that instructors should implement COVID19 topics into their class. This includes those who recommend relating COVID19 to topics being discussed in class, teaching facts about COVID19, discussing COVID19 news, values related to COVID19, and COVID19 communication strategies.