mSphere of Influence: No More Excuses—Addressing Race, Racism, and Socioeconomic Issues in the Science Classroom and Laboratory

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ABSTRACT

Pascale Guiton works in the field of parasitology at a primarily undergraduate institution. In this mSphere of Influence article, she reflects on her difficulties as a faculty of color to discuss socioscientific issues in her classrooms. T. D. Sadler’s article “Situating socio-scientific issues in classrooms as a means of achieving goals of science education” (in T. Sadler, ed., Socio-Scientific Issues in the Classroom. Contemporary Trends and Issues in Science Education, vol. 39, https://doi.org/10.1007/978-94-007-1159-4_1, 2011) made an impact on her by providing her with a framework that allows her to effectively address matters of race, racism, and disparities in the context of science courses, bringing together her identity, her students’ experiences, and her perceived role as a scientist-educator. She urges scientist-educators to make real space in their curricula to address these issues.

KEYWORDS

science and society, science education, scientist-educators, socioscientific issues, undergraduate education

At 2:00 pm, a train departs Paris for Rouen at 150 km/h. At 2:40 pm, a second train leaves Rouen to Paris at 120 km/h. At what time will they meet with the two cities being 130 km apart? Easy problem, right? Not so much for an 8th grader in the Ivory Coast who had neither been on a train nor to France. I was unable to visualize the scene, panicked, and left the question unanswered. The context was too foreign for most African students. My poor performance on this assignment did not reflect my understanding or lack thereof of the relationship between speed, time, and distance. The lesson from this experience is forever ingrained in my mind: my background should not impede my ability to succeed in science. Years later, I trust that my role as a scientist-educator is to neither encourage rote learning nor alienate the learner in my classrooms and my laboratory but rather to connect them with science in a way that enriches their day-to-day lives and contributes to making them informed citizens.

I confess my course contents remain mostly out of touch with my lived experiences and that of my students. Tragically, I have unconsciously (and consciously at times) abandoned myself on the threshold of my classrooms, as I rejected my station in the gender and racial spaces and refused to be defined by my sex and the abundance of melanin in my skin. I became someone else in my workplace, a person wholly described in Paul Dunbar’s 1896 poem “We Wear a Mask” (1). Like many scientist-educators, I found it easier to justify the lack of substantive discussions of socioeconomic issues with time constraints, the sizeable instructional materials, the impact on student evaluations, and vitriolic feedback. When mentioned, these issues are often reduced to one or two bullet points on a lecture slide.

However, behind the mask hid a scientist-educator screaming about the social inequities pervading our societies and the lack of representation of people of color.
and women in scientific textbooks and at conferences. The mask also concealed the
distress caused by pseudoscientific theories (e.g., race realism) that reinforce ster-
eotypes and white supremacy. I became all but impervious to the struggles stu-
dents face every day: homelessness, food insecurity, mental health issues, harmful
stereotypes, fear of deportation, racism in all its forms, and sadly, feelings of alienation
within the ivory tower. These challenges have been exacerbated by the global
coronavirus disease 2019 (COVID-19) pandemic and are now laid bare for everyone
to see. Why did I remain silent? What prevented me from discussing the use of sci-
entific theories to create a logic for harm and justify harmful policies in my

In the wake of the Black Lives Matter movement and a nation reckoning with her
racist history and xenophobic policies, it became impossible to hide my true
self and dissociate my course contents from the social issues around me. As a scien-
tist and college professor who happens to be a proud woman and an immigrant
with a mixed racial heritage, I could no longer shy away from controversial science-
related issues, including the impact of scientific research on disenfranchised com-
nunities, the stigmatization of mental illnesses and health disparities, disease
transmission in immigrant detention centers and prisons, U.S. politics during a
global pandemic, and the anti-vaccine movement. Anguished, yet resolute, I removed the
mask, and after years of silence, I spoke freely about difficult science-related topics. The
rewards were a genuine connection with my students and a renewed sense of self.

Of course, one needs not share my background or field of study to bring civic
engagement into the science classroom or laboratory. Scientist-educators must only
be willing to step out from behind their masks and down from the pedestals on which
they sat for far too long, recognize the biases and vulnerabilities they carry into the
classroom, and intentionally become change agents to achieve true inclusiveness and
diversity in the science classrooms and laboratories. Nazzy Pakpour, with whom I work
closely to revamp microbiology courses at our institution, accurately states “our sci-
ence classrooms are critical spaces where we must challenge our students’ assump-
tions before releasing them into the workforce.” We can achieve this aim by addressing
real issues in the classrooms and not cowering behind simple analogies, mundane
experiences, or made-up case studies.

As I struggled to integrate substantive discussions of racism, poverty, democracy,
and social inequities in my science lectures, I came across Troy D. Sadler’s framework
for developing and implementing courses around socioscientific issues (SSI) (2). This
approach offers an opportunity for scientist-educators to integrate controver-
sial topics effectively as they transmit scientific knowledge. David Senchina’s course
“Disease, Dialogue, and Democracy” is one excellent example of weaving together
past and contemporary SSI with the study of historical disease outbreaks (3). Students in SSI classrooms can still engage in scientific inquiry, develop ethical de-
cision-making skills, and improve their critical thinking and communication skills
(2). I have yet to develop such a course. Still, as a scientist-educator looking to raise
awareness of social issues in the science classroom, developing SSI-based lectures
on commonly taught topics like gene editing, bioterrorism, stem cell research, and
climate change, is as worthwhile as it is restorative.

Scientist-educators must embrace the critical responsibility to guide students to-
ward scientific literacy that informs civic literacy. We should strive to engage stu-
dents in more in-depth discussions around science-related issues, social justice,
and basic human rights. It is time we join forces with our colleagues in the human-
ities and use our subjects to empower students as they navigate the world. With
our help, science students can build the courage to address science-related issues
that impact their communities and become change agents in their own right. Our
students can only benefit from the truth of science and of who we are; after all,
they are engaged in the pursuit of truth and knowledge.
REFERENCES

