Issues of Diversity, Equity, and Inclusion in the (Science) Classroom

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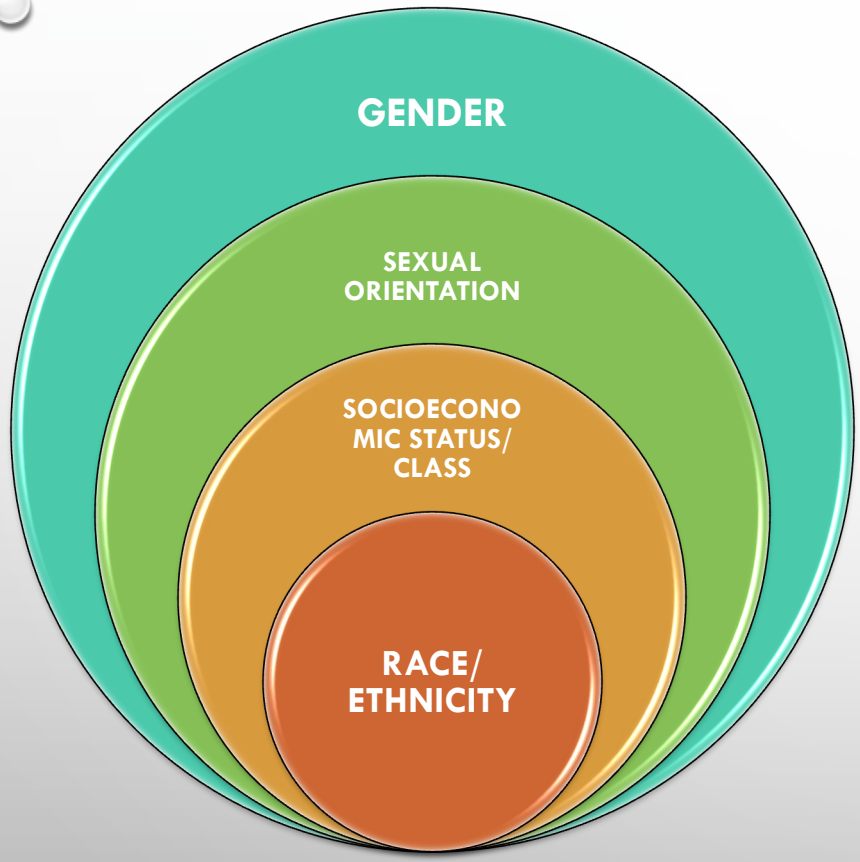
DEFINING TERMS AND MISCONCEPTIONS

Definitions	What is it?	What is it *not*?
Diversity is the representation of people from a range of different socioeconomic and demographic backgrounds	Diversity leads to a variation in *thought* since scientific progress requires multiple perspectives to identify problems and craft tailored solutions.	Diversity for the sake of diversity is meaningless since that approach is outcomes based and *not* (more importantly) process based.
Inclusion is the opportunity for individuals who have traditionally *not* been a part of the process (i.e., marginalized) to engage with others.	Inclusion is a *deliberate* act exercised by those who design/ control the process; these individuals must work to actively court these individuals.	Inclusion is *not* a standalone concept since it must be infused into an already existing process that could be improved/ reformed by increasing participation.
Equity is the process/structure by which newly included individuals are held to the same standards and can achieve comparable outcomes to other group(s).	Equity is the *mediator* between inclusion and diversity as it requires supports that help marginalized peoples succeed in their newly inclusive requirement, thereby resulting in greater representation.	Equity should *not* result in different standards for different people. Ultimately, the goal is to promote and maintaining high standards for everyone.

WHO IS IN A MARGINALIZED GROUP?



SPHERES OF EXCLUSION

MARGINALIZATION is based on the concept of "othering" in which one group has shared characteristic which are not shared by another group.

When one group becomes dominant over the other(s), the majority group's understanding comes to shape *everyone's* perception of reality. Those who are not in the dominant group must adopt or face permanent exclusion.

The related concepts of **INCLUSION** (intention), **EQUITY** (structure), and **DIVERSITY** (outcome) work to break the singular mindset of the majority group. This approach leads a richer experience with better results for *all* involved.

WHO IS IN A MARGINALIZED GROUP? (PART II)

GENDER

Females account for 47.7% of biologists, 42.5% of chemists, 25.8% of mathematicians, and 16% of engineers.

SEXUAL ORIENTATION

In the UK, 18% of LGBT+ and 32% of transgender scientists say they have experienced harassment, bullying or exclusionary behavior in the workplace.

SOCIOECONOMIC STATUS/ CLASS

61% of students in the top household income quartile have access to high quality in school lab experiences compared to 47% in the bottom quartile.

RACE/ ETHNICITY

Only 12% of those working in science and engineering fields were either Black or Hispanic (all genders) compared to 14% for Asian men *alone*.

IMPORTANT! For the purposes of our discussion, marginalization is **CONTEXT** specific since social situations generally have a majority ("in") group and one or more smaller, minority ("out") groups.

INTERSECTIONALITY is the concept that an individual (or group) might belong to one or more exclusive groups. In that case, the overlap can lead to an even more intense marginalization experience.

Science Teachers as Instructors and Advocates

Inclusion in the science classroom begins in the primary years (K-6) and focuses on understanding student backgrounds, beliefs, and cultivating curiosity (growth mindset)

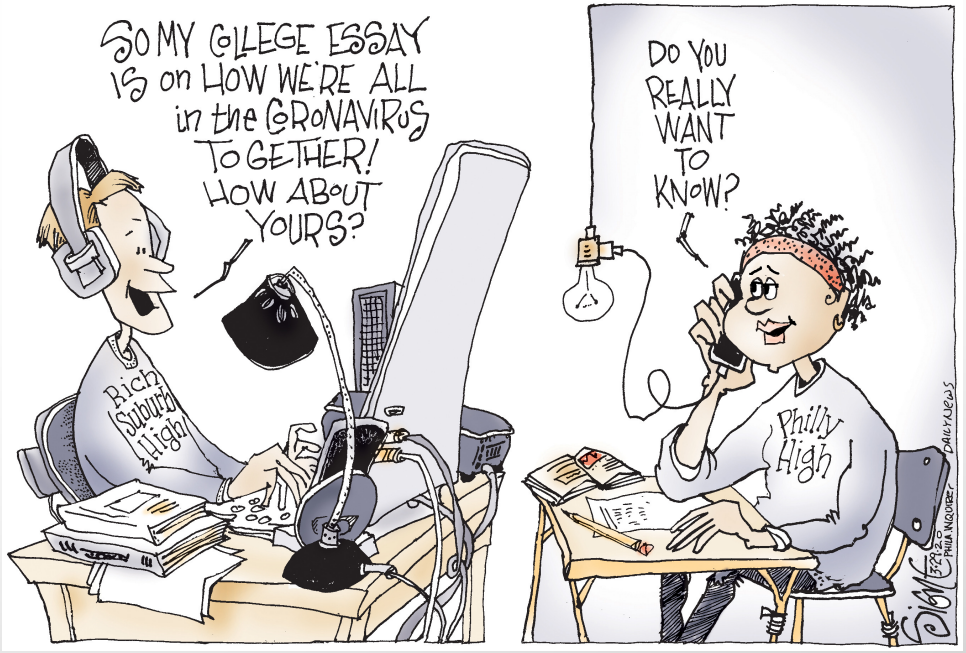
Equity in the science classroom should be a prominent theme during the secondary years (7-12) when students begin to enroll in "tracked" courses.

Diversity is the outcome of inclusion and equity as scientists of all sorts come together to identify problems and promote creative solutions.

Diversity, Equity, and Inclusion Inside & Outside the Science Classroom

As science educators, we know that, for our students to fully grasp the content they learn *in the* classroom, they must be able to apply to *outside the classroom* to understand the natural world around them.

But barriers to access can limit some marginalized students' experiences (i.e., lack of **INCLUSION**). In turn, this can lead to lower expectations and lower outcomes *in the classroom* (i.e., lack of **EQUITY**) and reduced participation in scientific undertakings (i.e., lack of **DIVERSITY**).



The result is a self-reinforcing (and debilitating) cycle of missed opportunity and undeveloped talent.

THANK YOU!

Feel free to contact me should you have any questions, comments, or concerns:

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