Countering Stereotype Threats:
Actions Faculty Members Can Take to Help Students Succeed

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I. Stereotype Threats

Stereotype threat refers to being at risk of confirming, as a self-characteristic, a negative stereotype about one's social group (e.g., white men cannot jump, students of color are not good at science, etc.; Steele & Aronson, 1995). Stereotype threats in an academic environment causes decreases in achievement, higher usage of self-defeating tactics, and a disconnection from the course and/or subject matter. In *Whistling Vivaldi*, Claude Steele asserts that, "if you want to change the behaviors and outcomes associated with social identity…don't focus on changing the internal manifestations of the identity, such as values, and attitudes. Focus instead on changing the contingencies to which all of that internal stuff is an adaptation." With significant responsibility for the climate of a learning environment, faculty members are particularly well positioned to reduce stereotype threats by a variety of conscious actions that can bolster confidence and belongingness for their marginalized students.

II. Affirmations

Affirmations are defined as acts or sentiments that provide encouragement and support. When instructors incorporate methods into their courses that remind their students of their worth as well as the value they bring to an academic environment, they are affirming their students.

A. Explicitly Affirming Underrepresented Groups

Students from underrepresented backgrounds are very likely familiar with stereotypes that expect poor STEM performance by people from one or more of their marginalized identities to which they belong. Teaching students that such historically situational attributions are wrong reduces the power these stereotypes have to stimulate threat situations that impair student performance, belonging, and success.

Example: Discrediting Harmful Stereotypes Discuss studies that debunk situational bias or attributions related to minority students. For example, students from lower socio-economic backgrounds struggling with and disregarding school or certain disciplines are frequent themes in movies, social media, and news outlets. Stimulating discussion about such flawed and harmful representations helps students from such backgrounds who are aware of the harmful stereotypes but may not know of work that discredit these stereotypes. Examples of articles debunking situational biases include Cole & Espinoza (2008), Evans (2005), and Joseph et al. (2017).

Example: Acknowledging Impacts of Harmful Stereotypes Share an image, cartoon, or quote that invokes a familiar stereotype about ability and a category of people (e.g, 'girls stink at math'). Allow students to examine the example for a moment and then ask students why they think you are sharing this example. During the discussion, reinforce the inaccuracy of the claim and how its incorrect assumption causes harm to members of the group it stereotypes. Next, ask students about other stereotypes they have heard or experienced that make assumptions about the abilities of other marginalized groups. Use contributions from the students to discuss harmful mindsets, making sure to counter the assumptions and stereotypes brought up during the discussion. Such classroom conversations allow students to be open about the kinds of stereotypes or attributions they may have encountered. Although some students may express anxieties to you privately where assurances provided one-on-one are important, such messages need to be communicated explicitly to all students in the class. When harmful stereotypes are debunked during class, students receive affirmations that negate inaccurate stereotypes and a clear message that they belong, and their instructor believes that all students can succeed.

Example: Normalizing Diversity Intentionally ensure that examples of underrepresented individuals making important contributions are regular, normal, and expected course elements and not one-time occurrences.

Reinforce that successful scientists from minority backgrounds are not overcoming their circumstances, but instead, overcoming pervasive stereotype threats.

B. Explicitly Affirming Individuals

Individual affirmations highlight and value contributions from different backgrounds, social identities, and experiences and emphasize how a student's interests connect with course content.

Example: Affirmations of Quality Contributions When assigning students to submit a question, summarize a point, or design a problem related to the topic being studied, intentionally select the contributions of students from underrepresented backgrounds to highlight as strong examples for the full class to solve, discuss, or consider. An instructor may or may not elect to acknowledge the name of the student authors. Public acknowledgement signals to all students the value of the work done by underrepresented students. Even without public acknowledgement, a student will recognize their own work as exemplary and experience a private affirmation that their contributions are strong and valuable. Similarly, make sure to acknowledge success of marginalized students in positive ways by asking students to demonstrate they successfully worked through a challenging problem, identified the key element to a situation, etc. Give a heads up when possible, such as by asking a student during office hours if you can call on them to share an excellent point at the start of class tomorrow. Such actions powerfully demonstrate that the instructor has full faith in the student and their abilities. Moreover, these actions emphasize to both majority and minority students that students from underrepresented backgrounds have important contributions and are doing well academically.

Example: Affirmations of Relevance and Encouraging Personal Connections Assign an article, video, or reading about real-world or practical applications of course material and/or by a diverse group of researchers. Ask students to write about what the student values personally and how those values align with the reading/video, course content, and/or how they can use this knowledge to advance their values and priorities. Such exercises encourage awareness of how a course can be made more relevant. Students need to be able to affirm themselves and what they find important as well as acknowledge how their new knowledge will be helpful in the future and/or can be applied to their priorities and values.

Example: Acknowledgements of Inequity Acknowledge past or present injustices, biases, exclusion, blind spots, and/or mistakes within the process of acquiring knowledge in a discipline through discussions, examples, content, assignments, etc. Demonstrate why allowing space for everyone to contribute is so critical to successful pursuits in STEM and how diverse teams are often more successful or innovative than homogenous teams. Creating environments that acknowledge flawed approaches to the discipline demonstrates an understanding that perspectives of underrepresented people are critically important.

C. Intentionally Ensuring Representation

Students within the natural sciences routinely encounter images, names, and instructors who are of the majority. When faced with the current identities of those who are represented as the expert, minority students face the identity crisis of being someone of a different background who also desires to achieve within the STEM discipline. By providing images, lectures, and audio examples of experts from underrepresented backgrounds, minority students receive a model of someone who could have very well shared similar experiences. Giving students the opportunity to see other representations also sends a larger message that instructors are aware of the abilities that each student possesses and is open to experiences from all backgrounds informing the student's learning process.

Example: Faces and Voices Matter An instructor's selection of readings, videos, authors, tutors, teaching assistants, images on slides, posters, etc. all demonstrate to students who gets to do STEM and who is excluded from STEM. We each often respond favorably and engage more deeply when we encounter stories, images, and voices that reflect aspects of our personal identities. Similarly, we have trouble imagining ourselves in situations where individuals with shared identity characteristics are not visible or present. Consequently, underrepresented students particularly need to see examples of people with similar backgrounds and experiences to envision themselves making STEM contributions.

III. Growth Mindset

A growth mindset is a belief that "ability is malleable and can be developed through persistence, good strategies, and quality mentoring" (Canning et al., 2019). The growth mindset is both a belief and an approach. The instructor's role is pivotal to the student's approach to the class. A recent study revealed that an instructor's mindset affected student performance within STEM classes more than any other trait or lesson quality attribute measured (Canning et al., 2019). For marginalized students, the effects were further magnified, and racial achievement gaps were reduced. By employing a growth mindset, all students benefit, and instructors do as well. The growth mindset serves as an encouragement for minority students to continue working hard, to come to office hours with questions, and empowers them to reclaim the knowledge as their own. It also offers students the opportunity to shape their learning experiences.

A. Signaling a Growth Mindset

The growth mindset can start at any time. It is essential for instructors to be transparent about their belief in the growth mindset to their students by frequently reinforcing growth mindsets within the syllabus, assignments, and statements during class time.

Example: Start with Lower Stakes The first exam in a course is often particularly stressful for students who perceive it as a "weeding" event with potency to indicate whether or not they belong in the course. Some students come into STEM with a higher level of privilege and advantage than others due to structural inequalities. Instructors can counter this stereotype threat by reducing the overall weight of the first exam or quiz in a final course grade. For students who come in with prior knowledge, the first exam typically goes well, while students lacking a privileged background often perform poorly. Subsequent exams are less threatening because often the material is new for all students. Self-perceptions of ability, however, may be founded in the initial exam score. By creating a first "lower stakes" exam, students without a privileged background are penalized less, while students from privileged backgrounds are rewarded less. Students cannot control their level of privilege so by mitigating divergent privileges, greater emphasis is placed on ability and improvement.

Example: Emphasize Your Playing Field is Level and You Believe Success is Attainable Students often have justifiable reasons to be concerned that their work may not be evaluated fairly. Thus, it is important for an instructor to delineate clear expectations up front and take steps to minimize bias so that all students are graded on clearly communicated standards. Explicitly describe evaluation practices that enhance objectivity such as including grading rubrics with assignment prompts and grading blindly. Moreover, emphasize that all students have the capacity and ability to meet your standards and find ways to remind each student that you believe in them personally. Avoid signaling that you expect only a fraction of students within a course to achieve a high grade (e.g., grading on a curve) and communicate clearly that all students can do well.

B. Maintaining a Growth Mindset

A growth mindset needs cultivation by regular encouragements; repetition inspires good habits.

Example: Consciously Praise the Learning Process Growth mindsets can be influenced positively or negatively by the ways in which an instructor delivers praise. Phrases or sentiments that praise a student for being "smart", being a "natural", or finishing quickly reward those who are more likely to come from privileged backgrounds and inadvertently send discouraging messages that talents and skills are possessed rather than developed. Instead, praise a student's deep investment, careful work, insightful perspective, thoughtful question, embracing of a big challenge, demonstrated understanding, etc. Encourage students to enjoy the fruits of their labor and recognize their progress.

References

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