

Inclusive Teaching – Evidence-based Practices

Center for Teaching and Learning, University of Pennsylvania, 2016

1. Communicate high expectations and provide students with the support to meet them. Students thrive when challenged, if they understand the expectations, how to meet them and feel the instructor believes in their capabilities (*Refs. 1-4*).

- Communicate expectations and multiple strategies to approach the work.
- Indicate that all students can meet the challenge with practice.
- Build in low-stakes, well-structured practice on skills required for tests and assignments.
- Give students feedback that includes recognition of your high standards and the sense that the student can meet them.

2. Facilitate students' sense of identity within your field. A sense of belonging within a field can bolster all students' performance and persistence in a discipline (*Refs. 5-8*).

- Give students authentic tasks, such as primary research, analysis of authentic data, or other versions of practices in the discipline appropriate for the course level.
- Make student work visible to a wider audience than just the instructors and TAs.
- Ask students to reflect on how their backgrounds can contribute to their success.
- Provide students with diverse role models in your field.
- Reach out to talented students in your class to encourage them to continue in your field.

3. Help students see that academic ability develops over time and takes effort. Developing a “growth mindset,” the sense that academic ability is something that develops through struggle, can help students overcome tendencies to attribute difficulties in a class or field to a lack of ability (*Refs. 4, 9*).

- Stress that struggle is normal. Students experiencing stereotype threat in particular will be more likely to persist if they see their difficulties as typical ones.
- Talk about your own struggles and how you overcome them.
- Give students the chance to hear from peers or work together, so they can see that others struggle and learn how they overcome difficulties.
- Emphasize to students that taking advantage of help or mentorship is something successful students do. Connect students with support resources at Penn.

4. Use strategies such as active learning and/or group work. Group work and active learning strategies improve learning for all students while increasing student confidence, and have a particularly strong effect on underrepresented students (*Refs. 10-13*).

- Intersperse active learning strategies – such as student polling, brief writing exercises or pairwork – in lecture classes; develop recitations around problem sets or activities; or restructure the use of lecture time more completely.
- Structure activities or group work carefully to focus on learning goals and help students work through tasks.
- Provide frequent opportunities for practice and low-stakes feedback.
- Provide groups with sufficiently difficult tasks that students benefit from working together.
- Design groups so that students feel they belong in the class: the groups are small enough to make sure everyone has to participate, various levels of students are grouped to encourage all to contribute, and underrepresented students are not generally alone in groups of all majority students.

- 5. Get to know your students.** Understanding the interests and backgrounds of your students can help you connect students to the field, recognize their diverse strengths and check your assumptions about them (*Ref. 14*).
- Meet individually with students at some point in the semester, perhaps to discuss a class assignment, get their feedback or understand why they are in the class.
 - Ask students to bring their experiences and interests into class discussions or assignments without singling out students or asking students to be spokespeople for their racial, ethnic, or cultural group.
 - Reach out to students who appear to be struggling, but do not assume that they are not working hard. Such students may be working quite hard, but not effectively.
- 6. Understand social psychological phenomena such as stereotype threat and implicit bias.** Awareness of these phenomena can help instructors to develop inclusive practices and avoid common pitfalls (*Refs. 1, 2, 14-17*).
- Stereotype threat creates underperformance in some students when they feel that the instructor believes that they cannot do well because of stereotyped qualities assumed to belong to their group (for more, see reducingstereotypethreat.org).
 - Implicit biases are unconscious assumptions that we make about others, often based on stereotypes (for more, see kirwaninstitute.osu.edu/researchandstrategicinitiatives/#implicitbias and <https://implicit.harvard.edu/implicit/takeatest.html> to test your own biases).
 - Microaggressions are small, often subtle and unintentional, comments and actions that marginalize particular groups or individuals, creating an unwelcome classroom environment.
1. J. R. Shapiro, A. M. Williams, The Role of Stereotype Threats in Undermining Girls' and Women's Performance and Interest in STEM Fields. *Sex Roles*. **66**, 175–183 (2011).
 2. C. Steele, *Whistling Vivaldi : and other clues to how stereotypes affect us* (First edition. New York : W.W. Norton & Company, 2010).
 3. G. L. Cohen, C. M. Steele, L. D. Ross, The Mentor's Dilemma: Providing Critical Feedback Across the Racial Divide. *Personality and Social Psychology Bulletin*. **10**, 1302–1319 (1999).
 4. L. Aguilar, G. Walton, C. Wieman, Psychological insights for improved physics teaching. *Phys. Today*. **67**, 43–49 (2014).
 5. S. Freeman *et al.*, Prescribed Active Learning Increases Performance in Introductory Biology. *CBE Life Sci Educ*. **6**, 132–139 (2007).
 6. A.B. Hunter, S. L. Laursen, E. Seymour, Becoming a scientist: The role of undergraduate research in students' cognitive, personal, and professional development. *Sci. Ed*. **91**, 36–74 (2007).
 7. G. L. Cohen, J. Garcia, V. Purdie-Vaughns, N. Apfel, P. Brzustoski, Recursive Processes in Self-Affirmation: Intervening to Close the Minority Achievement Gap. *Science*. **324**, 400–403 (2009).
 8. G. M. Walton, G. L. Cohen, A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*. **331**, 1447–1451 (2011).
 9. J. Aronson, C. B. Fried, C. Good, Reducing the Effects of Stereotype Threat on African American College Students by Shaping Theories of Intelligence. *Journal of Experimental Social Psychology*. **38**, 113–125 (2002).
 10. M. Lorenzo, C. H. Crouch, E. Mazur, Reducing the gender gap in the physics classroom. *Am. J. Phys.* **74**, 118–6 (2006).
 11. D. C. Haak, J. HilleRisLambers, E. Pitre, S. Freeman, Increased Structure and Active Learning Reduce the Achievement Gap in Introductory Biology. *Science*. **332**, 1213–1216 (2011).
 12. S. L. Eddy, K. A. Hogan, Getting under the hood: how and for whom does increasing course structure work? *CBE Life Sci Educ*. **13**, 453–468 (2014).
 13. H. Fencl, K. Scheel, Engaging Students: An Examination of the Effects of Teaching Strategies on Self-Efficacy and Course Climate in a Nonmajors Physics Course. *Journal of College Science Teaching*. **September**, 20–24 (2005).
 14. P. G. Devine, P. S. Forscher, A. J. Austin, W. T. L. Cox, Long-term reduction in implicit race bias: A prejudice habit-breaking intervention. *Journal of Experimental Social Psychology*. **48**, 1267–1278 (2012).
 15. C. M. Steele, J. Aronson, Stereotype Threat and the Intellectual Test Performance of African Americans. *Journal of Personality and Social Psychology*. **69**, 797–811 (1995).
 16. D. Solórzano, M. Ceja, T. Yosso, Critical Race Theory, Racial Microaggressions, and Campus Racial Climate. *Journal of Negro Education*. **69**, 60–73 (2000).
 17. Guinier, Lani, Jane Balin & Michelle Fine, *Becoming Gentlemen: Women, Law Schools and Institutional Change* (Beacon Press, Boston, MA, 1997).