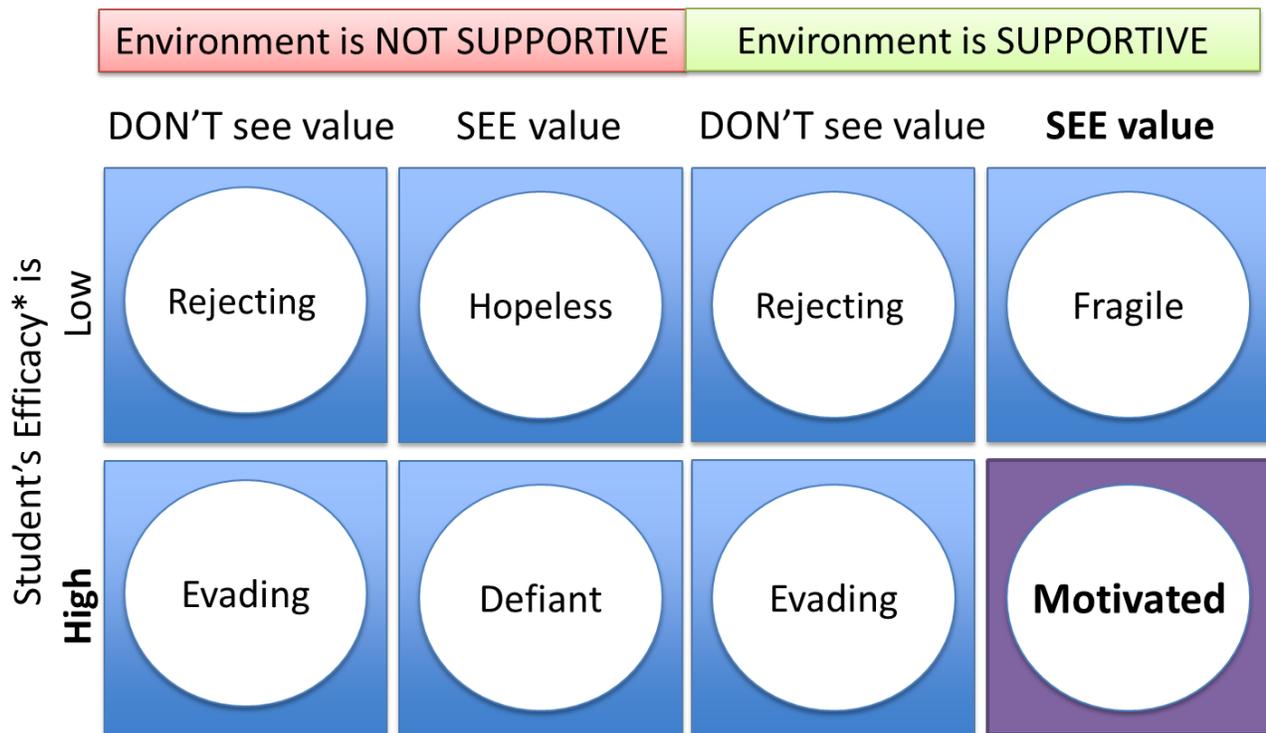


An alternative framework for motivation

Motivational Factor	Related Equity & Inclusion factors	Notes / instructional strategies
Personal relevance and interest	<p>Learners' goals, interests, and values</p> <p>Development as a person in STEM</p>	<ul style="list-style-type: none"> • Use real-world contexts and problems as much as possible • Remember that different students find different things to be interesting, and different goals • Find out what students' goals are; let them express those goals and why they are important to them. • Connect course material explicitly to future courses or career directions • Highlight explicitly how students are developing as scientists • Have students reflect on connections between what they are learning and their own goals and development as a scientist • Share your own enthusiasm for the subject (but remember there can be other reasons to find the subject interesting too)
Choice and control	<p>Multiple ways to productively participate</p> <p>Learners' goals, interests, and values</p>	<p>With guidelines to keep within learning goals of the course:</p> <ul style="list-style-type: none"> • Have students vote on optional topics to include in curriculum • Have students choose their own topic for a project or assignment • Have students design their own problem to solve / research • Give students a say in how to manage assignments and grading policies
Belief that one can achieve one's goals: master the course material / develop as a scientist	<p>Beliefs about learning, achievement and teaching</p> <p>Development as a person in STEM</p>	<ul style="list-style-type: none"> • Project high expectations • Acknowledge existence of, and reduce conditions for, stereotype threat / identity threat • Choose appropriate level of challenge • Give opportunities for early successes • Encourage students to view intelligence as a malleable rather than fixed trait • Emphasize importance of practice, and provide opportunities to reflect on how their practice leads to improvement • Highlight explicitly how students are developing as scientists • Provide opportunities where students act authentically as scientists (e.g., take, analyze, and present own data) • Make norms of scientific discourse explicit • Give students pre-class assignments to help prepare

From: [Motivating Learning](#) (by Carl Wieman Science Education Initiative) and [Framework](#) for Equity and Inclusion (by Institute for Scientist & Engineer Educators)

- http://www.cwsei.ubc.ca/resources/files/Motivating-Learning_CWSEI.pdf
- <http://isee.ucsc.edu/programs/pdp/equity-inclusion.html>
- Ambrose, S., M. Bridges, M. DiPietro, M. Lovett, and M. Norman. 2010. How Learning Works: Seven Research-Based Principles for Smart Teaching – chapter 3. San Francisco: John Wiley & Sons.
- Pintrich, P. 2003. "A Motivational Science Perspective on the Role of Student Motivation in Learning and Teaching Contexts." *Journal of Educational Psychology* 95 (4): 667–686.



*Self-efficacy: one's belief in one's ability to succeed