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TE 350: Current Topics in STEM

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*Growth Mindset and Stereotype Threat*

Through the article an article about stereotype threat, a TedTalk by Carol Dweck, and the data from an experiment on growth mindset, a connection can be drawn between growth mindset and stereotype threat. To understand this point, first one must understand what both growth mindset and stereotype threat are. Next, one must see the relationship between the two ideas. Finally, teachers should incorporate both theories into their classrooms in order to allow students to get the best learning experience possible.

According to Carol Dweck, a psychology professor at Stanford University, “[a] growth mindset is when students understand that their abilities can be developed,” (Dweck, *The Power of Believing that you can Improve,* 2014). What this means is that people who have a growth mindset believe that he/she can go above and beyond his/her natural talents. If a person has this type of mindset, he/she will often be found trying to improve their intellectual abilities through learning. The reason growth mindset it such a positive things it because it allows people to unlock their potential and strive to be the best they possibly can be. Not only is it important for students to have a growth mindset, but it is also important for teachers to have and nurture growth mindsets. While it is essential for a student to believe in himself/herself, it is equally as essential to have someone helping them along the way. This is where teachers come in because “It is crucial that ‘teachers who understand the growth mindset do everything in their power to unlock that learning,’ (Dweck, 2015),” (*What is Growth Mindset?* Para. 1). If a teacher hands his/her students all the time without leaving room for personal exploration or research, he/she can stifle student’s imagination and drive to learn on their own.

Stereotype threat can be defined as “the risk of confirming negative stereotypes about an individual’s racial, ethnic, gender, or cultural group’” (*Stereotype Threat*, Para 1). This type of threat is particularly dangerous because supports negative stereotypes by oppressing people of certain groups. Stereotype threat can be seen in almost every aspect of life, from education to sports to careers and more. One of the biggest areas stereotype threat can be seen is in education, notably in the science, technology, engineering and math fields. According to a study done by Maya Beasley, an assistant professor of sociology at the University of Connecticut, and Mary Fischer, a well known author, “[a]lthough a significant number of underrepresented minorities and women may express interest in STEM fields prior to or at the start of college, the number who ultimately major in these fields is considerable smaller. [...] In 2004 the ratio of the proportion of entering White freshman who intended to major in STEM relative to White STEM graduates was 0.76 while the respective figures for African-Americans and Hispanics were each only 0.57,” (Beasley & Fischer, 428). It is alarming that there is a 0.2 difference in succession rates of white men and African-American or Hispanic students. Though race does have a huge impact on how likely students are to stick with the STEM field, gender also plays a huge role in this. It is interesting to find out that though Black women “outpace their male counterparts at all levels of degree conferrals [...] Black men still represent nearly one-half of African-Americans receiving degrees in STEM,” (Beasley & Fischer, 433). This point enforces the idea that stereotype threats not only come from race, but they also happen in reference to gender.

If everyone were to have a growth mindset, stereotype threat would not be able to tear down so many individuals. As said previously, people with growth mindsets know that they can work to be anything they want. With this statement in mind, the idea that women or Hispanic people cannot be STEM majors no longer has any hold. If a person can work to be anything they want, it does not matter what gender, race, or ethnicity they are. For this reason alone, it is essential for teachers to define and explain both of these theories to their students. If students understand that they can be or do anything as long as they are willing to put in the work, stereotype threats cannot create an issue for them. These ideas can be, and should be, incorporated into any subject matter, not just STEM, but it is most important that students see if in this subject field. For example, in a class where students are learning about computational thinking the teacher may assign a project revolving around these theories. An example of computational thinking is the engineering design process (EDP) and therefore the teacher could have his/her students follow the steps of said process to understand growth mindset and stereotype threats. Each student would have to go through the eight steps of the EDP (define, identify, brainstorm, select, prototype, test, iterate, and communicate) and use them in reference to both theories. For example, at the brainstorm step for growth mindset students may brainstorm ways they can participate in this type of mindset. An example of stereotype threat may be a student prototyping an open forum for students to express problems they have had with that theory. There is no excuse for teachers to not employ their students with the knowledge of these theories in order to prepare them as best as they can for learning.

In conclusion, growth mindset and stereotype threat are important in their own, but together they can change lives. If teachers work to educate their students on these theories by applying them to projects in their class, they can change the future of every student in their classroom.

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