

Mitigating the Effects of Stereotype Threat: A CAST Research to Practice Loop

Allison Posey

CAST, Inc.
Wakefield, MA, USA
aposey@cast.org

Abstract

Stereotype threat is a subtle, yet significant experience that can increase the risk an individual becomes concerned that they are confirming a negative stereotype about a valued group to which they belong. It can impact performance in school, including test performance, engagement, task preparation, and collaboration. A CAST research team studied the effects of stereotype threat on collaboration in a middle-school inquiry-based science context. In addition, as part of a research-to-practice model, CAST piloted online professional development trainings for educators to build classroom strategies to mitigate the effects of stereotype threat in their context.

Keywords

UDL, stereotype threat, research to practice loop, feedback.

INTRODUCTION

Stereotype threat can be experienced when an individual is concerned that he/she will match expectations that are associated with a subgroup to which he/she belongs. It can lead to anxiety, reduced expectations, and can magnify gaps in performance (Steele & Aronson, 1995). For example, there is evidence that there is accompanying physiological arousal (Blascovich et al, 2001) and reduced cognitive capacity (Schmader & Johns, 2003) that contribute to discrepancies in performance. Examples of stereotyping exist in many contexts, such as athletic performance, gender and test performance, and the academic performance of African Americans. Stereotype threat can influence any individual depending on the context and on identification with a particular group.

CAST researched the effects of stereotype threat on 8th grade inquiry-based science classrooms. First, they conducted an experimental research study that looked at the effects of an induced stereotype threat situation on student collaboration. Then, they piloted online professional development training with middle school science educators with the goal of raising awareness of stereotype threat and integrate strategies to mitigate its effect.

EXPERIMENTAL STUDY

A CAST research team, led by Dr. Samantha Daley, PhD., worked with 4 teachers in 16 8th grade science classrooms. At the beginning of each class period, students were randomly assigned “threat” or “non-threat” articles to read, for example “threat” articles focused on the gender or racial achievement gaps and “non-threat” articles were about neu-

tral science topics. The class then proceeded with the inquiry-based activity as planned.

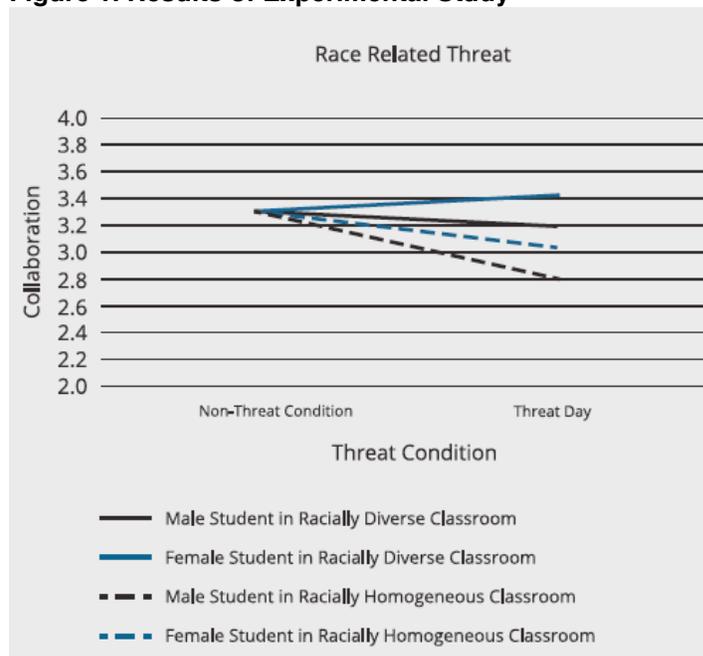
On days when “threat” was induced, students, teachers, and researchers all rated collaboration to be lower for *all* learners, including those for whom the stereotype is invoked. Collaboration was reviewed from student surveys, teacher surveys, and researcher observations using RTOP. The results from CAST’s research showed the following:

Stereotype threat can affect class-level dynamics, not just individuals.

Stereotype threat was evidenced in both racially diverse and racially homogenous classrooms, with rates higher in homogeneous classrooms.

Both males and females were impacted, with rates higher for males.

Figure 1. Results of Experimental Study



PROFESSIONAL DEVELOPMENT

Following the experimental research, a CAST team, led by Dr. Sam Catherine Johnston, PhD., developed and piloted a 10-week online professional development course with the goal to inform middle-school science teachers about stereotype threat and introduce strategies that can be immediately

integrated into practice. Communities of practice were fostered in order to discuss the impact for all learners. The course included webinars, online content such as readings, videos, discussions, and workshops that facilitated small group discussion in how teachers approach instruction, feedback, and peer-to-peer interactions. Effectiveness of the course was measured by observation of interactions, site usage log data, work and feedback by teachers, surveys and interviews.

As a result of the professional development training, educators were more familiar with the definition of stereotype threat and better able to recognize examples of it in educational contexts (Daley, Johnston, in press). In addition, educators learned strategies to mitigate the effects of stereotype threat and tried them in their classroom practice. Examples of strategies that were integrated, reflected upon, and shared within the community of practice included:

Use of growth feedback (Mueller & Dweck, 1998) and wise feedback (Yeager et al, 2013) to emphasize rigorous instructional goals and focus on how all students are using resources available in the learning environment to make progress. A teacher noted, "The most powerful thing... is the (wise and mastery oriented) feedback... I saw dramatic improvements in their effort and the quality of their work—they were more engaged in class, needed less redirection, were taking better notes."

Use of the mood meter (Yale Center on Emotional Intelligence, 2017) to increase communication between teacher and students. "The mood meter allowed me to connect with students and communicate with them in ways that didn't have to do with the curriculum... it definitely improved communication between me and my students."

Use of self-affirmation (Cohen et al, 2006) strategies before assessments that have been shown to have lasting affects. A teacher commented "I had the students do a self-affirmation activity the day before we took a test... the average increased to 85% from around 70%. And the only thing I changed was the self-affirmation."

CONCLUSION, CONNECTION TO UDL

Stereotype threat is a subtle effect that can impact any individual in a wide range of contexts, including collaboration in an inquiry-based science classroom. There are concrete strategies educators can integrate into curriculum to reduce the impact of stereotype threat. Universal Design for Learning promotes developing rigorous learning goals that support building expert learners in domain-content areas such as inquiry science. It supports the range of learner variability anticipated in every learning context in terms of engagement, representation, and action & expression. UDL can be used to optimize the flexible means offered for all learners to achieve the intended outcomes and supports the design of instructional environments and curricula with strategies shown to reduce the impact of stereotype threat, such as use of mastery-oriented feedback, use of options for self-regulation, and optimizing high-expectations for all learners.

This project demonstrated the need for educators to attend to stereotype threat because of its impact on overall learning in science classrooms and to approach the design of learning environments to be inclusive and supportive to all.

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