Reducing Stereotype Threat and Fostering a Growth Mindset

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Beth Fisher, PhD, Director of Academic Services
The Teaching Center
teachingcenter.wustl.edu
Performance on a 30-Minute Verbal Test
(27 Qs from GRE study guides + 3 anagrams)

Mean Items Solved (adjusted by SAT)

<table>
<thead>
<tr>
<th></th>
<th>Diagnostic</th>
<th>Non-Diagnostic</th>
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<tbody>
<tr>
<td>Black Subjects</td>
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<tr>
<td>White Subjects</td>
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Steele and Aronson, 1995
Performance on a 30-Min Math Test
(Qs from GRE)

Spencer, Steele, and Quinn, 1999
Performance on a 20-Min Math Test (Qs from GMAT)

Test Characterization

- No-Gender-Difference Control
- Control

Score Corrected for Guessing

- Men
- Women
Stereotype Boost

Two examples: in both studies, the participants were Asian-American, female college students

1. Performance on a quantitative test
   • Higher when participants’ ethnic identity was made salient prior to test
   • Lower when participants’ gender identity was made salient (Shih, et al., 1999)

2. Performance on a verbal test
   • Lower when participants’ ethnic identity was made salient prior to test
   • Higher when participants’ gender identity was made salient (Shih, et al., 2006)
Mechanism behind Stereotype-Threat Effect

Frustration during a difficult assessment

- When students identify with a group that is negatively stereotyped in the assessed domain
- Anxiety that poor performance could confirm stereotype about the group
- Reduced capacity of working memory

Schmader and Johns, 2003
Stereotype Threat: Summary of Major Points

- Awareness of a stereotype that links identity to ability or intelligence can depress students’ performance, even when a stereotype is not explicitly invoked.

- Stereotype threat is contextual:
  - Can affect anyone, depending on context, but does affect some more than others (e.g. if among a numerical minority in the discipline or at the institution).
  - More prevalent when students strongly identify with domain in which they are being assessed.
Reducing Stereotype Threat: Research-Based Strategies

- Teach students about Stereotype Threat
- Counter stereotypes and numerical underrepresentation by teaching students about contributions to discipline by diverse individuals
- Avoid referring to students’ performance as reflective of “natural” ability or talent—or lack thereof
- Combine high standards and specific feedback with expressed confidence that all can achieve
Implications for Teaching and Learning

How might you apply knowledge about Stereotype Threat to teaching in your discipline, at your institution?

- Discuss in groups of three for ~5 minutes.
Reducing Stereotype Threat: Research-Based Strategies

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• Foster a “growth mindset”—intelligence and ability grow over time
Mindsets about Intelligence

You can learn new things, but you can’t change your basic intelligence.

### GROWTH
Intelligence is **malleable**; it can change and increase.

### FIXED
Intelligence is innate and does **not** change.

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<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

**Video: What is Growth Mindset?**
Mindsets of Students: Effects on Response to Academic Struggle

Intelligence is unchanging (Fixed or Entity)
- Likely to be outcomes-focused
- Assess performance relative to classmates
- Confidence is fragile
- Focus on repairing self-esteem in response to failure (blame others)

Intelligence is malleable and can increase, with “exercise” (Growth or Incremental)
- Likely to be process-focused
- Assess performance relative to mastery of material
- Confidence is resilient
- Focus on working harder in response to failure (take responsibility)
Undergraduates in Calculus courses completed survey measuring “sense of belonging to math community” 3 times during semester – once after each exam

- **Results:**
  - For all students (male and female)
    - Students’ perception of a **fixed-mindset environment** was correlated with a **lower sense of belonging** to the math community”
  - The more that women perceived a **growth-mindset environment**, the more they maintained a sense of belonging to the math field, “even when they perceived their environments as highly gender-stereotyped”
Research-Based Insights about Mindsets

• Students’ mindsets can affect their reaction to and improvement in performance after evaluation

• Instructor feedback can promote “growth mindset” and resilience

• Perception of a “growth-mindset” environment can help students maintain sense of belonging in a field, even when they encounter negative stereotypes
Encouraging a “Growth Mindset” Environment

- Approach faltering as opportunity for learning and improvement
  - Describe struggling as crucial to learning
  - Show that failure can lead to development of new ideas and discoveries (give examples)
  - Ask questions such as “Who made an interesting mistake today?” or “Did you find any stumbling blocks or places where you struggled? How did you work through those difficulties?”

- Actively show enthusiasm for ideas of ALL students
  - Show interest via verbal and NON-VERBAL cues
  - Encourage students to think out loud and point to specific strengths of their contributions and questions

Ref: Dweck (2008)
References: Stereotype Threat and Growth Mindset


reductingstereotypethreat.org