

# Creating a Diverse Learning Community

August 14, 2013

We're here to talk about diversity and to plan out a workshop to encourage healthy social interactions between people without letting their differences interfere.

George Pólya's *How to Solve It* provides a general heuristic for problem-solving of all kinds.

- 1 Understand the problem.
- 2 After understanding it, make a plan.
- 3 Carry out the plan.
- 4 Look back on your work. How could it be better?

“If you can't solve a problem, then there is an easier problem you can solve: find it.”

My addition is

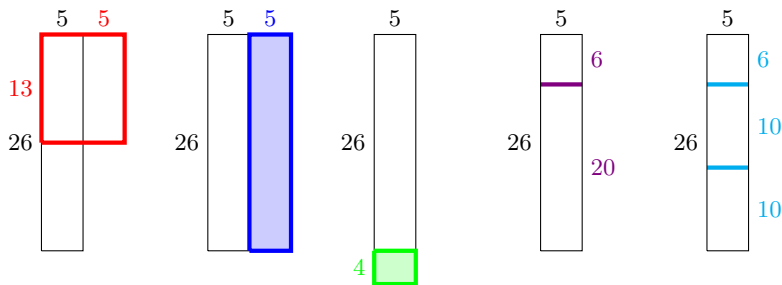
Step 0:

Why is the problem worth our time?

- STEM (Science, Technology, Engineering, and Mathematics) fields are not as diverse as the larger population.
  - Some facts to reflect on:
    - 1 Although only 5 percent of American workers were employed in STEM occupations as of 2006, their impact on the national and global economies is disproportionately large. (The figures are similar for other countries.)
    - 2 In both academia and industry, those fields look the least like America.
    - 3 Dr. Scott E. Page has long argued that diversity means more productivity (see handout for more info)
- Why is the lack of diversity in STEM fields worth addressing? Do you think this is a problem?

Discuss

What is  $26 \times 5$ ?



Perhaps you did one of the five methods above or perhaps you did another one entirely. Knowing the myriad methods

- deepens our understanding
- makes the problem-solving process more exciting
- facilitates a learning community
- fosters a “growth mindset”

Let's watch a video discussing the effects of collaboration.



Hopefully, we've convinced ourselves that

- 1 the lack of diversity in math is a problem worth addressing
- 2 knowing how to work collaboratively will be an important component in our solution

Realistically, we cannot fix the lack of diversity in all of mathematics; however, we can foster social changes in our department that create the conditions necessary for diversity to thrive.

We're going to focus on understanding common social problems that are obstacles to this goal.

Dysfunctional/unwelcoming group dynamics can lead to four types of anxieties:

- Stereotype Threat
- Intergroup Anxiety
- Golem Effect & Interpersonal Contrast Effect
- Pygmalion Effect & Fixed Mindsets

# Stereotype Threat

# Understanding the Problem - Types of Anxieties: Stereotype Threat

- Stereotype threat refers to being at risk of confirming, as self-characteristic, a negative stereotype about one's group. (Steele & Aronson, 1995)
- It can harm the academic performance of any individual for whom the situation invokes a stereotype-based expectation of poor performance.
- It can also lead to self-handicapping strategies, like reduced practice/study time.

A *sufficient* condition for creating a stereotype threat is simply pointing out distinguishing characteristics of a stigmatized group.

These comments do not necessarily have to be negative. They could be neutral or even positive.

Take a moment to think of an example of a seemingly harmless statement that might negatively impact a person of a stereotyped group.

# Understanding the Problem - Types of Anxieties: Stereotype Threat

What groups in math are typically affected by the Stereotype threat?

# Understanding the Problem - Types of Anxieties: Stereotype Threat

- Groups that have shown to be affected are
  - **Black students** (Steele & Aronson, 1995)
  - **Hispanic students** (Gonzales, Blanton, & Williams, 2002; Schmader & Johns, 2003),
  - **Women in math** (Good, Aronson, & Harder, 2008; Inzlicht & Ben-Zeev, 2000; Spencer, Steele, & Quinn, 1999),
  - **Students from low socioeconomic backgrounds** (Croizet & Claire, 1998),

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  - **Students from low socioeconomic backgrounds** (Croizet & Claire, 1998),
  - **(American) White men in math** (Aronson, Lustina, Good, Keogh, Steele, & Brown, 1999; Stone, Lynch, Sjomerling, & Darley, 1999)



# Intergroup Anxiety

# Understanding the Problem - Types of Anxieties: Intergroup Anxiety

- Intergroup anxiety refers to the difficulty people may feel interacting with members of another group. (Stephan & Stephan 1985)
- Anxiety can manifest even when anticipating interacting with members of an out group.
- It is correlated with increases in prejudice and perceived outgroup homogeneity (i.e. it creates or reinforces stereotypes)
- Research has shown the existence of an “in-group” advantage in understanding the anxiety of each other (Gray, Mendes, & Denny-Brown 2008).

# Understanding the Problem - Types of Anxieties: Intergroup Anxiety

- Here are some features of intergroup anxiety:
  - The failure to be aware of and demonstrate appropriate behavior that are congruent with the **outgroup's social norms** (i.e. insensitivity)
  - The fear of being **deemed as prejudiced** toward the out group by its members
  - The fear of being **rejected or mocked** by the members of the outgroup.
  - The possibility of being **ostracized from one's own ingroup** for associating with members of an out group
  - The belief that members of an outgroup are **potentially dangerous and pose a threat to oneself and others**

# Understanding the Problem - Types of Anxieties: Intergroup Anxiety

Have you ever witnessed and/or experienced intergroup anxiety? How did it come about? How extreme was it?

# Golem Effect & Interpersonal Contrast Effect

# Understanding the Problem - Types of Anxieties: Golem Effect & Interpersonal Contrast Effect

- The Golem effect is a phenomenon where negative expectations placed on a person negatively impacts performance.
  - These negative expectations can come from anyone, but are especially damaging when coming from a perceived superior.
- Interpersonal contrast effect is a phenomenon where positive expectations placed on one subgroup negatively impacts the performance of another group.
  - Placing high expectations on one subgroup leads the complimentary group to perceive lowered expectations.

# Understanding the Problem - Types of Anxieties: Golem Effect & Interpersonal Contrast Effect

In what ways could the Golem effect and the Interpersonal Contrast Effect exist in our environment? What methods should we use to combat it?

# Pygmalion Effect & Fixed Mindsets



## Understanding the Problem - Types of Anxieties: Pygmalion Effect & Fixed Mindsets

Just as negative expectations can negatively impact performance, positive expectations can positively impact performance.

But how might these expectations be communicated?

If those positive expectations are communicated by praise, the message could be damaging in the long run depending on how its phrased.

If praise connects positive outcomes with inherent intelligence, you may be setting students up for failure. Why? Because when students begin to seriously struggle, they begin to worry that perhaps they are not smart. This leads students to give up.

## Understanding the Problem - Types of Anxieties: Pygmalion Effect & Fixed Mindsets

- In an experiment, children were asked to do a series of puzzles.
- The first set of puzzles were straightforward.
- When completing the first set,
  - one group of children were praised for being intelligent
  - the other group of children were praised for their hard work
- Then the children were given harder puzzles.
  - Those who were praised for intelligence were far more likely to give up and become frustrated
  - Those who were praised for their hard work, worked at the puzzles much longer and were more likely to complete the puzzles.
- Then children were asked if they would want to do simpler puzzles or more challenging puzzles.
  - Those who were praised for intelligence chose simpler puzzles
  - Those who were praised for their hard work chose harder ones

# Understanding the Problem - Types of Anxieties: Pygmalion Effect & Fixed Mindsets

How might fixed mindsets affect our work?

In what ways, if any, do they play a role in our lives?

How can we combat fixed mindset and foster truly positive messages?

- There are many benefits to fostering diversity in the STEM fields.
- Collaboration appears to be a key component in creating the right atmosphere.
- There are a number of anxiety-inducing barriers to fostering healthy collaboration
  - Stereotype Threat – the worry of confirming a negative stereotype.
  - Intergroup Anxiety – social cliques can perpetuate negative interactions between groups
  - Golem Effect & Interpersonal Contrast Effect – Negative expectations or a lack of positive expectations by comparison can have a negative impact on performance
  - Pygmalion Effect & Fixed Mindsets – Positive praise that reinforces a belief in innate ability can negatively affect performance in the long run

That brings us to step 2: **Making a Plan.**

Questions:

- 1 What ideas would you like to see us focus on?
- 2 How can we communicate these ideas without lecture?
- 3 What are constructive, usable methods we can all use to improve the environment?
- 4 What specifically would you like to work on?

Things to keep in mind:

- 1 Universities should always be institutions of open discussion
- 2 Mistakes are normal and part of the learning process
- 3 Punishment bad actions is not the same as encouraging good actions