Growth mindset: Why views of intelligence & talent matter for women in academic medicine

Lourdes Alemán, Ph.D.
MIT’s Office of Digital Learning

http://blog.mimio.com/
Activity:

1. Think about something in your academic past that you think measured you. For example:
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2. Write down (on one side of index card):
   - the scenario in question and how it made you feel about your own abilities.
“The moment we believe that success is determined by an ingrained level of ability, as opposed to resilience and hard work, we will be brittle in the face of adversity”

Josh Waitzkin
Changes in adult **human** brains due to learning:

London cab drivers: “The Knowledge”

Woollett & Maguire (2011)
Changes in adult human brains due to learning:

London cab drivers: “The Knowledge”

Gray matter density
(means ± 2SE)

![Bar chart showing changes in gray matter density among qualified trainees, non-qualified trainees, and controls during the start and qualification phases.](chart)

Woollett & Maguire (2011)
What is mindset?

Carol Dweck, Ph.D.
Professor of Psychology (Stanford)
A framework for understanding how we view intelligence & ability

fixed

growth

http://blog.mimio.com/
<table>
<thead>
<tr>
<th>views on effort</th>
<th>fixed</th>
<th>growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>seen as sign of weakness</td>
<td>seen as an important component of learning</td>
</tr>
<tr>
<td>goals</td>
<td>performance goal: picking challenges you know you can meet</td>
<td>learning goal: picking increasingly more difficult challenges</td>
</tr>
<tr>
<td>attribution of failure</td>
<td>not enough ability or blames others &amp; situation</td>
<td>not enough effort or preparation, ineffective strategies</td>
</tr>
<tr>
<td>strategies</td>
<td>helpless or persevere with the same strategy</td>
<td>doubling down on effort, try new things, asks for help</td>
</tr>
<tr>
<td>feedback</td>
<td>avoids it, acts defensively</td>
<td>seeks it</td>
</tr>
<tr>
<td>results</td>
<td>lose interest/withdraw, self-sabotage</td>
<td>finds ways around it</td>
</tr>
</tbody>
</table>

Images from http://blog.mimio.com/
Growth mindset is associated with enhanced attention to corrective feedback following errors.
Activity:

fixed vs. growth

Images from http://blog.mimio.com/
Expectations of brilliance underlie gender distributions across academic disciplines

% of U.S. Ph.D.'s who are female

Field-specific ability beliefs
(higher # indicates greater emphasis on brilliance)

Leslie et al. (2015)
Expectations of brilliance underlie gender distributions across academic disciplines

% of U.S. Ph.D.’s who are African American

Field-specific ability beliefs
(higher # indicates greater emphasis on brilliance)

r = -0.52, P = 0.002

Leslie et al. (2015)
Success

what people think it looks like

what it **actually** looks like
“Do people with this mindset believe that anyone can be anything, that anyone with proper motivation or education can become Einstein or Beethoven? No, but they believe that a person’s true potential is unknown (and unknowable); that it’s impossible to foresee what can be accomplished with years of passion, toil, and training.”

Carol Dweck
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3. Re-examine your experience of failure. Answer (on the other side of index card):
   - what can I learn from that experience? How can I use it as a basis for growth?
fixed --> growth
Growth mindset interventions have been shown to be effective in a broad variety of settings:

- student performance
- management practice
- negotiation skills
Growth mindset as a strategy to decrease stereotype threat

Stereotype threat: risk of confirming a negative stereotype
fixed → growth
Applying a growth mindset

**Approach: commit to a learning mindset**

- Embrace a learning orientation —> focus on understanding and developing areas that need improvement
- Set learning goals —> seek challenging learning opportunities and set challenging learning goals.

**Action: create and capitalize on learning opportunities**

- Engage in experiments —> systematically engage in alternative approaches, set specific indicators of outcomes
- Seek feedback —> seek feedback about strengths and areas that could be improved. Take responsibility for one’s performance and strive to understand what feedback suggests about how to improve.
- Monitor fixed mindset thinking —> monitor disruptive emotions

**Reflection: capture the lessons of experience**

- Diagnose cause & effect —> explore the role played by oneself, others as well as external factors in the outcomes attained
- Consider how things could have gone better
- Distill lessons learned —> document success and areas where improvements could make the biggest positive difference to future performance.

Heslin & Keating (2016)
**Activity: Monitoring fixed state**

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Automatic thoughts</th>
<th>Alternative growth mindset interpretation</th>
</tr>
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</table>
| A colleague working on a project similar to yours has made much more progress than you during the last year | “He’s just more talented at designing and managing a large research project, and motivating his team” | “He has more experience than I do with large database work and I can learn from that”
|                                                                         |                                                                                    | “He has sought out managerial advice regarding managing his research team and I can do the same”             |
Activity

Identify something that is holding you back in your current career trajectory or a skill set you would like to improve. Identify:

- **1 short-term strategy** you could implement this week to work towards this goal.

- **1 long-term strategy** you will continue to implement during 2017.
“Why waste time proving over and over how great you are, when you could be getting better? Why seek out the tried and true, instead of experiences that will stretch you? The passion for stretching yourself and sticking to it, even (or especially) when it’s not going well, is the hallmark of the growth mindset… it allows people to thrive during some of the most challenging times in their lives.”

Carol Dweck