FOSTERING GROWTH LEARNING CONTEXTS:
RESEARCH-BASED APPROACHES IN STUDENT TUTORING & MENTORING

Rebecca Covarrubias, Ph.D.
Learning Support Services Workshop

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YOU BEGIN A LESSON BY GIVING YOUR STUDENT SOME EASY PROBLEMS. THE STUDENT DOES WELL ON THE PROBLEMS. TO PRAISE AND ENCOURAGE THE STUDENT, YOU SAY...
**FIXED MESSAGE**

“You did really well. You must be really smart at this.”

“You’re really good at this; you got this right without even trying!”

**GROWTH MESSAGE**

“You did really well. You must have tried really hard at this.”

“You’re really good at this; you got this right by using a good strategy.”

(Mindset, Dweck, 2006)
“You did really well. You must be really smart at this.”

“You did really well. You must have tried really hard at this.”

Now, what happens when you move to more difficult problems, and the student struggles?
Fixed Mind-set  
Intelligence is static

Leads to a desire to look smart and therefore a tendency to...

Growth Mind-set  
Intelligence can be developed

Leads to a desire to learn and therefore a tendency to...
Fixed Mind-set
Intelligence is static

Leads to a desire to look smart and therefore a tendency to...

Growth Mind-set
Intelligence can be developed

Leads to a desire to learn and therefore a tendency to...

CHALLENGES

...avoid challenges

...embrace challenges
Fixed Mind-set
Intelligence is static

Leads to a desire to look smart and therefore a tendency to...

Challenges
...avoid challenges

Obstacles
...give up easily

Growth Mind-set
Intelligence can be developed

Leads to a desire to learn and therefore a tendency to...

Challenges
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Obstacles
...persist in the face of setbacks
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EFFORT
...see effort as fruitless or worse
...see effort as the path to mastery
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CRITICISM
...ignore useful negative feedback
...learn from criticism
**EFFORT**
...see effort as fruitless or worse
...see effort as the path to mastery

**CRITICISM**
...ignore useful negative feedback
...learn from criticism

**SUCCESS OF OTHERS**
...feel threatened by the success of others
...find lessons and inspiration in the success of others
"Failure is the limit of my abilities"  
**FIXED MINDSET**  
"I'm either good at it or I'm not"  
"My abilities are unchanging"  
"I don't like to be challenged"  
"My potential is predetermined"  
"When I'm frustrated, I give up"  
"Feedback and criticism are personal"  
"I stick to what I know"

"Failure is an opportunity to grow"  
**GROWTH MINDSET**  
"I can learn to do anything I want"  
"Challenges help me to grow"  
"My effort and attitude determine my abilities"  
"Feedback is constructive"  
"I am inspired by the success of others"  
"I like to try new things"

**Fixed Mindset**  
- Intelligence is static
- Leads to a desire to look smart and therefore a tendency to:
  - Avoid challenges
- Obsstacles: give up easily
- Effort: see effort as fruitless or worse
- Criticism: ignore useful negative feedback
- Success of others: feel threatened by the success of others

**Growth Mindset**  
- Intelligence can be developed
- Leads to a desire to learn and therefore a tendency to:
  - Embrace challenges
- Obstacles: persist in the face of setbacks
- Effort: see effort as the path to mastery
- Criticism: learn from criticism
- Success of others: find lessons and inspiration in the success of others

**As a result**  
- They plateau early and achieve less than their full potential
- All this confirms a deterministic view of the world

**As a result**  
- They reach even higher levels of achievement
- All this gives them a greater sense of free will

Graphic by Nigel Holmes
<table>
<thead>
<tr>
<th></th>
<th>Fixed Mindset</th>
<th>Growth Mindset</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Achievement...</strong></td>
<td>means proving you’re smart.</td>
<td>means that you’re learning and stretching.</td>
</tr>
<tr>
<td><strong>Being smart...</strong></td>
<td>means that you’re making no mistakes.</td>
<td>means that you’re confronting a challenge and making progress.</td>
</tr>
<tr>
<td><strong>A setback or mistake...</strong></td>
<td>leads to loss of confidence.</td>
<td>indicates an area of growth.</td>
</tr>
<tr>
<td><strong>Failure...</strong></td>
<td>leads to humiliation.</td>
<td>means that you’re not yet fulfilling potential.</td>
</tr>
<tr>
<td><strong>Effort...</strong></td>
<td>shouldn’t be required if you’re smart and takes away excuses for failure.</td>
<td>is the path to mastery that makes you smarter. You get out what you put in.</td>
</tr>
<tr>
<td><strong>Success...</strong></td>
<td>is defined as being the best and is based on talent.</td>
<td>is defined as working hard to become your best and is based on motivation.</td>
</tr>
<tr>
<td><strong>A bad grade...</strong></td>
<td>means it’s time to give up.</td>
<td>means it’s time to work harder.</td>
</tr>
<tr>
<td><strong>Feedback...</strong></td>
<td>is threatening, as it provides good or bad news about precious traits.</td>
<td>is welcomed, as it provides useful direction toward areas to work on.</td>
</tr>
<tr>
<td><strong>The need to ask for help...</strong></td>
<td>indicates a weakness or deficiency that should not be admitted.</td>
<td>is a useful strategy for growth.</td>
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</tbody>
</table>
“Because **intelligence is malleable**, humans are capable of learning and mastering new things at any time in their lives. This message is especially important to get across to young, struggling students. If these students view intelligence as a fixed quantity, they may feel that they are incapable of learning if they encounter difficulty with their school work. If, however, **students can be convinced that intelligence expands with hard work**, they may be more likely to remain in school and put effort into learning.”

“Intelligence is not a single entity, but rather composed of many different talents…. it is a potentially devastating mistake to view intelligence as a single attribute; it may lead young students to give up entirely on education if they are struggling in one subject, because the students can see themselves as failures at a global level. But if struggling students can be convinced that there are many different types of intelligence, they may be more likely to continue to learn in an attempt to find and develop areas of strength.”

(Aronson, Fried, & Good, 2002)
<table>
<thead>
<tr>
<th>Measure</th>
<th>Malleable pen pal</th>
<th></th>
<th>Experimental condition</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Blacks (n = 16)</td>
<td>Whites (n = 12)</td>
<td>Blacks (n = 12)</td>
<td>Whites (n = 11)</td>
</tr>
<tr>
<td>Short-term malleability beliefs</td>
<td>5.04&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.81&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>4.40&lt;sup&gt;abc&lt;/sup&gt;</td>
<td>4.07&lt;sup&gt;abc&lt;/sup&gt;</td>
</tr>
<tr>
<td>Long-term malleability beliefs</td>
<td>5.42&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.70&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>4.31&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>3.79&lt;sup&gt;cd&lt;/sup&gt;</td>
</tr>
<tr>
<td>Enjoy academics</td>
<td>4.38&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.43&lt;sup&gt;ad&lt;/sup&gt;</td>
<td>3.47&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.89&lt;sup&gt;cd&lt;/sup&gt;</td>
</tr>
<tr>
<td>Academics are important</td>
<td>4.77&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.61&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.89&lt;sup&gt;c&lt;/sup&gt;</td>
<td>5.67&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Perceived stereotype threat</td>
<td>5.22&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.62&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.70&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.42&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Spring quarter GPA</td>
<td>3.32&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.55&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.05&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.34&lt;sup&gt;ac&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
What can I say to myself?

Instead of...

- I'm not good at this
- I'm awesome at this
- I'm on the right track
- I give up!
- This is too hard
- I'll use some of the strategies I've learned
- This may take some time and effort

Try thinking...

- What am I missing?
<table>
<thead>
<tr>
<th>WHAT CAN I SAY TO MYSELF?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I CAN'T MAKE THIS ANY BETTER</td>
</tr>
<tr>
<td>I CAN'T DO MATH</td>
</tr>
<tr>
<td>I MADE A MISTAKE</td>
</tr>
<tr>
<td>I'LL NEVER BE AS SMART AS HER</td>
</tr>
<tr>
<td>IT'S GOOD ENOUGH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRY THINKING...</th>
</tr>
</thead>
<tbody>
<tr>
<td>I CAN ALWAYS IMPROVE; I'LL KEEP TRYING</td>
</tr>
<tr>
<td>I'M GOING TO TRAIN MY BRAIN IN MATH</td>
</tr>
<tr>
<td>MISTAKES HELP ME IMPROVE</td>
</tr>
<tr>
<td>I'M GOING TO FIGURE OUT WHAT SHE DOES AND TRY IT</td>
</tr>
<tr>
<td>IS THIS REALLY MY BEST WORK?</td>
</tr>
</tbody>
</table>
FOSTERING A GROWTH LEARNING INTERACTION

INTERACTIVE SCENARIOS
IMAGINE THAT YOU ARE A STUDENT IN CLASS AND YOU HEAR YOUR INSTRUCTOR SAY...
You either know the formulas and concepts or you don’t. You either are the kind of person who has the skills to understand math or you don’t.

I teach this course like a science course. If you are not confident about your abilities, I suggest that you transfer to another instructor.

30% of you will fail, 20% of you will get D’s. It happens every year and it will happen this year to you.

If you don’t get it early and quickly, you don’t belong in this class.

I want you guys to learn the material and I will help you learn it.

Improvement in this class comes with hard work. Anyone can be proficient if they work hard enough. Students will have the insights they need to do well in the class.

I had a student from a previous semester who struggled with math. However, he regularly attended office hours and asked questions, and ended up getting the highest grade in the class.

You are all smart enough to get an A, however, you might find a few topics difficult, and if that is the case, please come to my office hours so we can discuss the topic in more depth.

(Murphy, in prep)
WHAT DO YOU THINK ABOUT YOUR POTENTIAL TO SUCCEED IN THIS COURSE?
How Educators Can Assist Learners in Developing a Growth Mindset

by Jackie Gerstein, Ed.D.
User-Generated Education

- I believe that all students can learn and be successful.
- I believe that I should assist students in believing that they are good & powerful learners.
- I believe that all learners are smart in their own unique ways.
- I believe all students should be challenged and be rewarded for taking risks and rising to challenges.
YOU ARE BEGINNING A NEW LESSON. WHAT LANGUAGE DO YOU USE TO FRAME THIS NEW LESSON TO STUDENTS?
Today, I want you to challenge yourself. Stretch to learn this challenging material.

I do not expect you to know this already. I am here to help you learn challenging material.

I know you have the ability to learn this, so we’re going to set the bar high.

I’m going to push you all, because I know that if you stretch yourself, you can all do amazing work.
YOU LEARN THAT YOUR STUDENT FAILED THE LAST EXAM. HOW DO YOU RESPOND TO THIS DISAPPOINTMENT OR FAILURE?
YOU LEARN THAT YOUR STUDENT FAILED THE LAST EXAM. HOW DO YOU RESPOND TO THIS DISAPPOINTMENT OR FAILURE?

• Okay, so you didn’t do as well as you wanted to. Let’s look at this as an opportunity to learn.

• What parts did you do well in? What parts were difficult for you?

• What did you do to prepare for this? Is there anything you could have done differently?

• Let’s make a plan for practicing and/or learning in a new way.
YOUR STUDENTS SHARE THAT THEY DID VERY WELL ON AN EXAM “WITHOUT TRYING.” HOW DO YOU EXTEND CONGRATULATIONS?
YOUR STUDENTS SHARE THAT THEY DID VERY WELL ON AN EXAM “WITHOUT TRYING.” HOW DO YOU EXTEND CONGRATULATIONS?

• It’s great that you have that down. Now we need to find something a bit more challenging so you can grow.
• You’re ready for something more difficult.
• What skill would you like to work on next?
• What topic would you like to learn more about next?
YOUR STUDENTS SHARE THAT THEY DID VERY WELL ON AN EXAM “WITH A LOT EFFORT.” HOW DO YOU EXTEND CONGRATULATIONS?
YOUR STUDENTS SHARE THAT THEY DID VERY WELL ON AN EXAM “WITH A LOT EFFORT.” HOW DO YOU EXTEND CONGRATULATIONS?

• I’m so proud of the effort you put forth in order to improve your grade… (to stay on task).
• Congratulations, you really used great strategies for studying… (managing your time).
• All that hard work and effort paid off!
• I am proud of you for not giving up.
Even Einstein Struggled: Effects of Learning About Great Scientists’ Struggles on High School Students’ Motivation to Learn Science

Xiaodong Lin-Siegler and Janet N. Ahn  
Teachers College, Columbia University

Jondou Chen  
University of Washington

Fu-Fen Anny Fang and Myra Luna-Lucero  
Teachers College, Columbia University

Students’ beliefs that success in science depends on exceptional talent negatively impact their motivation to learn. For example, such beliefs have been shown to be a major factor steering students away from taking science and math courses in high school and college. In the present study, we tested a novel story-based instruction that models how scientists achieve through failures and struggles. We designed this instruction to challenge this belief, thereby improving science learning in classroom settings. A demographically diverse group of 402 9th and 10th grade students read 1 of 3 types of stories about eminent scientists that described how the scientists (a) struggled intellectually (e.g., made mistakes in textbooks, that did not describe any struggles). Results showed that participation in either of the struggle story conditions improved science learning postintervention, relative to that of students in the control condition. Additionally, the effect of our intervention was more pronounced for low-performing students.
<table>
<thead>
<tr>
<th></th>
<th>Albert Einstein</th>
<th>Marie Curie</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Achievement story</strong></td>
<td>Albert Einstein won many awards in his life, including the 1921 Nobel Prize in</td>
<td>By the time she reached college, Marie Curie was able to understand five languages: Polish, Russian,</td>
</tr>
<tr>
<td>(AS condition)</td>
<td>physics. His thoughts were so advanced that many contemporary scientists are</td>
<td>German, French, and English—all of which were the major languages that top scientists spoke at the</td>
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<tr>
<td></td>
<td>still working on the ideas he talked about in 450 papers he published. In 1999,</td>
<td>time. Curie attended the top college in France, the Sorbonne. Not only was she the first woman to</td>
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<tr>
<td></td>
<td><em>Time</em> Magazine named Einstein the man of the century, and he is considered the</td>
<td>receive a degree in physics there, she was also selected for a prestigious award when she graduated.</td>
</tr>
<tr>
<td></td>
<td>father of modern physics because of his achievements.</td>
<td></td>
</tr>
<tr>
<td>**Intellectual</td>
<td>Bearing in mind that to succeed, one has to try things over and over again when</td>
<td>It was frustrating that many experiments ended up in failure; however, Curie would not let herself</td>
</tr>
<tr>
<td>struggle story</td>
<td>mistakes or failures happen, Einstein rewrote his papers and improved his</td>
<td>stay sad for too long. Instead, she returned to where things did not work out and tried again.</td>
</tr>
<tr>
<td>(ISS condition)</td>
<td>arguments when people disagreed with him. For instance, when theorizing that</td>
<td>Often working hour after hour and day after day, Curie focused on solving challenging problems and</td>
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<tr>
<td></td>
<td>gravity from a large object like a planet could actually bend light, Einstein</td>
<td>learning from her mistakes. She knew that the way of progress was never easy, and later, she said,</td>
</tr>
<tr>
<td></td>
<td>received many questions and doubts. Although he could not conduct any experiments</td>
<td>“I never yield to any difficulties.”</td>
</tr>
<tr>
<td></td>
<td>to support what he proposed, he knew his ideas so well that he was still able</td>
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<tr>
<td></td>
<td>to debate with others.</td>
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</table>
I've missed more than 9000 shots in my career. I've lost almost 300 games. 26 times, I've been trusted to take the game winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed.

~ Michael Jordan
WHAT IS THE POTENTIAL PROBLEM WITH THESE PHRASES?

“Oh, this is easy. You’ll get it in no time.”

“You have a real knack at this!”

“You’re really good at this; you got this right without even trying!”

“Just try harder, it will come to you.”

“Not everyone is good at this. Just do your best.”
WHAT TO SAY WHEN STUDENTS ASK:

How do you know all of this?
"I didn’t know any of this stuff. I just read a lot and asked a lot of questions till I better understood it. Even still, it’s a learning process for me."

Were you always good at math?
"No, not at all. I understood some concepts, but for the most part, I really had to devote a lot of time and practice to understand these concepts."

I still don’t understand this.
"Everybody learns a little differently... so if I explain something that doesn’t make sense, it’s probably because I was unclear. Let’s go through some of your questions so that I can support you better in this learning process."
Growth Mindset Reflection Questions for the Educator

- Were my expectations clearly presented to learners?
- Did I set and maintain a climate to learn from mistakes and failure?
- Did I set a forum for learners to receive authentic feedback from me, peers, and experts?
- Did I provide the resources and scaffolding if and when needed?
- Did I provide the time and resources to address learner questions and confusions?
- Did I praise effort, resourcefulness, and resilience?
- Did I ensure that learners were engaged in and motivated by the work?
- Did my learners and I consider and use best practices for similar work?
MORE DISCUSSION
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