Growth-minded Encouragement

A challenging problem exists for teachers when large segments of students struggle across time or specific students struggle consistently. Regardless of the context where you teach, a common phenomenon can emerge that speaks volumes about **long-term patterns** of student engagement you observe on a regular basis.

As has been noted previously, this is sometimes referred to as the "Matthew Effect" and presents one of education's greatest riddles for teachers to solve. It can be **extremely frustrating** to produce such a disparity of results with a group of students who were exposed to seemingly "the same learning opportunity."

For some, what comes to mind is the longstanding tradition associated with the Bell Curve distribution of intelligence used to explain why we see this phenomenon of educational "have's" and "have nots" in terms of academic achievement. For many years the idea of a **fixed** capacity for all students – often tied directly to the construct of an Intelligence Quotient (IQ) – encouraged teachers to engage in only minimal reflection when students failed.

A teacher might have thought to him/herself:

- *I taught it*
- *Some students didn't get it*
- ***Now what?!? (reflective, perplexed about what steps to take next)***

*For many teachers the **"now what**?!?" questions are asked on a continual basis in light of data that invites teacher deliberation. Instructional adjustments based on formative assessment data are often closely tied to a teacher's **"now what?!?" moments.***

For some teachers operating from a firm belief in the Bell Curve, this may have looked more like:

- *I taught it*
- *Some students didn't get it*
- ***So what?!? (the student's performance is entirely predictable and there is nothing I can realistically do about this)***

This ***"So what?!?"*** approach was bolstered by the underlying belief by many in the field of psychology and education that based on the evidence that students respond to their learning conditions primarily in proportion to their IQ – or capacity – to respond. Therefore, poor student academic performance was attributable to the IQ of the student, not the instructional methods or learning conditions designed by educators.

The result of this kind of thinking was **entirely predictable** –

- instruction was delivered in whatever method suiting the teacher (i.e., one size fits some)
- failure to achieve mastery (learning outcomes) was the responsibility of students with little consideration of adjusting the learning conditions (inputs)
- the results were deemed to reveal who is "smart" and who is "not as smart" and even "not so smart at all"
- data about student failure was juxtaposed against student success to serve as a type of "proof" that since teaching methods were sufficient for ***some*** there was no need to make adjustments.

- Poor achievement results were attributed to deficiencies of ***students***, not deficiencies in instructional methods.

The disparity of results presented no real problem for teachers and for many students the message was that as long as they didn't disrupt the learning process for the "smart" students – they were welcome to get out of the class as much as they could. For students who wanted to literally "get out of the class" there were the usual options of truancy, suspensions, expulsions, or simply dropping out.

This point is made very well by Tomlinson and Sousa (2011) in their book, Differentiation and the Brain. When describing their model of differentiation and the brain, they say:

> Further, the model asserts that a teacher's belief about the capacity of each student is to succeed with essential content affects everything in the classroom. Teachers who believe that some students are smart and some are ***not*** **have little difficulty with the outcome** when some students succeed academically and **others do not**. After all, they conclude, that's just the way the world works. (pg. 10) (emphasis added)

Though it might be a well-traveled image, it is good to remember that every learner - regardless of current age or skills – remains a learner throughout their entire life. Students need to learn that the key to adding "growth rings" is to never stop growing.

Teachers should engage in self-reflection on an ongoing basis to safeguard against viewing students from a fixed or entity view of ability.

Paying Attention to Effective Effort

It has only been more recently that the **fixed** view of intelligence has been challenged by an **expandable** view of learning potential.

As a leading proponent of what is best summarized as a **growth mindset**, Dr. Carol Dweck, Professor of Psychology at Stanford University, has conducted research on how pivotal a student's own learning orientation is to their interpretation of academic challenge. For educators implementing the Common Core State Standards, awareness of how students view themselves as learners takes a more prominent role than in the past.

Dr. Carol Dweck's research on how students interpret challenge and draw conclusions about their potential for success provides powerful indications of what teachers should do, and what they shouldn't. In her research, Dweck found that students with a performance orientation fear that whatever "smart" is they don't have what it takes to be smart. When they encounter evidence of struggling to learn or an example of not being "smart" they conclude **erroneously** that they are not "smart" or good at this kind of task. This is a vexing problem when stereotypes

emerge (e.g., such as boys are biologically predisposed to be better at math or science than girls).

In short, students who experience temporary failure as a result of rigor may conclude that their potential for future success is unlikely and the chances of failure are extremely high. They extrapolate from what they observe about a learning situation and attribute the cause as something permanent and **unalterable** within them.

Conversely, students with an **expandable** view of ability make mistakes but interpret them as being an expected part of the learning process. Rather than concluding that there is something wrong with them or that they are "not smart" (or worse) - students with an expandable view of ability often focus on adjusting their level of **effort** to match the level of the challenge or rigor. They look for different strategies that will help them persevere.

They also:

- assume that the content is learnable and the tasks are doable with the **right amount of effort**.
- believe that **persistence** pays off and they believe that persistence will again pay off.
- continue to view their **teacher as an ally** in the process of overcoming the temporary learning challenges. As a result of persevering these students experience success rather than stopping at the first sign of failure.

Consider additional thinking provided by Dr. Carol Dweck in support of her book, Mind Set:

> Why Do People Differ?
> Since the dawn of time, people have thought differently, acted differently, and fared differently from each other. It was guaranteed that someone would ask the question of why people differed why some people are smarter or more moral – and whether there was something that made them permanently different. Experts lined up on both sides. Some claimed that there was a strong physical basis for these differences, making them unavoidable and unalterable. Through the ages these alleged physical differences have included bumps on the skull (phrenology), the size and shape of the skull (craniology), and, today, genes.
>
> Others pointed to the strong differences in people's backgrounds, experiences, training, or ways of learning. It may surprise you to know that a big champion of this view was **Alfred Binet**, the inventor of the IQ test. Wasn't the IQ test meant to summarize children's **unchangeable** intelligence? In fact, **no**. Binet, a Frenchman working in Paris in the early 20th century, designed this test to identify children who were not profiting from the Paris public schools, **so that** new educational programs could be designed to get them back on track. Without denying individual differences in children's intellects, he believed that education and practice could bring about fundamental changes in intelligence. Here is a quote from one of his major books, *Modern Ideas About Children*, in which he summarizes his work with hundreds of children with learning difficulties:
>
> **"A few modern philosopher's assert that an individual's intelligence is a fixed quantity, a quantity which cannot be increased. We must protest and react against this brutal pessimism.... With practice, training, and above all, method, we manage to increase our attention, our memory, our judgment and literally to become more intelligent than we were before."**

Who's right? Today most experts agree that it's not either/or. It's not nature or nurture, genes or environment. From conception on, there's **a constant give and take between the two**. In fact, as Gilbert Gottlieb, an eminent neuroscientist put it, not only do genes and environment cooperate as we develop, but genes require input from the environment to work properly.

At the same time, scientists are learning that people have more capacity for life-long learning and brain development than they ever thought. Of course, each person has a unique genetic endowment. People may start with different temperaments and different aptitudes, but it is clear that experience, training, and personal effort take them the rest of the way. **Robert Sternberg**, the present-day guru of intelligence writes that the major factor in whether people achieve expertise "is not some fixed prior ability, but **purposeful engagement**." Or, as his forerunner, Binet, recognized, it's not always the people who start out the smartest who end up the smartest.
(Retrieved on 6-24-12 from Growth Mindset website. Link is in bibliography of course)

One question that many teachers ask is whether this approach can actually be **taught** to students? This question takes on a new sense of urgency as implementation of the Common Core State Standards requires a high degree of intentionality when matching the level of rigor to individual students.

Dweck's research indicates that it ***can be taught*** because the entire point of the growth mindset is that ability can be expanded through effort. Research in recent years around brain plasticity and the impact of experience on learning has added even more support to the idea that it is not "nature vs. nurture" but truly "nurture the nature" one has. According to information available on the IES What Works Clearinghouse provided by the US Department of Education, a growth perspective not only can be taught but is an evidence-based practice that should be taught.

Teaching a Growth Mindset Starts with the Teacher's Mindset about Growth

All learners **like** to hear they are doing well and making progress. In addition to liking it, learners also **need** affirmation of progress and information that can be applied when performance is lacking. When students struggle on academic tasks they typically recognize this phenomenon before external feedback on their performance occurs. When students receive external feedback (e.g., from a teacher) they interpret the information provided. If the information provided by adults leaves a student with a fixed mindset interpretation – "I'm not smart enough to do this kind of work" – then the challenges already inherently in the tasks are magnified exponentially. An appropriate level of rigor may suddenly balloon to feeling like an impossible task for the student.

In most cases teachers can recognize learners based on a student's overt verbalizations –

- "I'm no good at this"
- "I've never been any good at _(fill in the blank) ___"
- "I'm not smart enough to be good at this"
- "Teachers have told me for years that I'm not good at _(fill in the blank)_"
- "My dad says he was no good at this stuff either" (implying it is fixed through heredity)

- "Everyone knows that ____(gender)___ are no good at this"

Students who make these kinds of verbalizations reflect their level of discouragement. Without the benefit of knowing it, students may have embraced a fixed view of intelligence and been provided a steady stream of adult feedback interpreted as "evidence" proving this view of themselves. After years and years of such "evidence," the effects of such conclusions can be very hard to ignore.

Consider that the IES Practice Guide on Encouraging Girls in Math and Science (2007) which makes this point in a number of different ways.

> **Recommendation 1: Teach students that academic abilities are expandable and improvable.**
> To enhance girls' beliefs about their abilities, we recommend that teachers understand and communicate this understanding to students: Math and science abilities—like all abilities—can be improved through consistent effort and learning. Research shows that even students with considerable ability who view their cognitive abilities as fixed or unchangeable are more likely to experience greater discouragement, lower performance, and, ultimately, **reduce their effort when they encounter difficulties or setbacks**. Such responses may be more likely in the context of math, given **stereotypes** about girls' innate mathematics abilities.20 In contrast, students who tend to view their abilities as expandable tend to keep trying in the face of frustration in order to increase their performance. To help girls and young women resist negative reactions to the difficulty of math and science work, it can be very helpful for them to learn that their math and science abilities can improve over time with continuous effort and engagement.

It is important for teachers implementing the CCSS to recognize the implications of such statements made by students. Because the standards are predicated on a backward design process, students who struggle early in their learning trajectory can be predicted to struggle often later. Regardless of your teaching context (i.e., 1st grade, 5th grade, 10th grade) you have a role to play in helping learners re-orient their thinking if it is apparent that they exhibit patterns associated with a fixed view of capacity.

Recommendation 1: Teach students that academic abilities are expandable and improvable.

- Teach students that working hard to learn new knowledge leads to improved performance.
- Remind students that the mind grows stronger with use and that over time and with continued effort, understanding the material will get easier.

While working with discouraged learners can be problematic in area content area or age level, this situation can take on significant dimensions for teachers working in a domain (e.g., math) where mastery of skills and content builds sequentially. Each instance of struggle or failure to master content/skills in earlier instructional units cannot easily be mitigated when future learning hinges on mastery of the current skills.

What is of utmost importance is that **teachers themselves** find ways to re-orient students to the challenges they experience so that they **do not have a fixed view of learner potential but an expandable view.**

Maximizing Engagement Through Synergy with Students

One of the best ways to leverage your efforts at maximizing engagement for all learners is to enlist students to think as you do about the learning process. Like a bicycle built *for two* - **we** achieve results in tandem with our students, not in isolation. Professionals working to maximize engagement for all learners do the hard work of reflecting on the learning conditions for students. Included in the learning conditions is the quality of their connection with students.

What is a particular problem for students is illustrated in the following quadrant graphic. When both the teacher **and** the student have a **fixed** view of capacity then at the first sign of failure or struggle both may erroneously conclude that (a) the student lacks potential to master the necessary skills, knowledge and dispositions to succeed and (b) the evidence of this is obvious.

both teacher and student have a growth mindset,
work in tandem and are heading the same direction through challenges

teacher has a growth mindset, but student has a fixed mindset
and doesn't work through challenges in tandem with the teacher

***neither** the teacher nor student have a growth mindset*
and create negative synergy heading the wrong direction

Making the Effort to Attend to Fixed vs Expandable Views of Ability

To maximize engagement for all learners it is important to make the most of each learning opportunity. What **they** think about "mistakes" and what **we** convey about them can play a very

significant role in whether we maximize engagement. In other words, if we hold a fixed view of student ability when mistakes are made it may draw only minimal attention. If students hold a fixed view of their own potential they are often relieved (!) that no attention is paid to their mistakes or the frequency of them.

But, when students hold an expandable view of their ability and a growth mindset they help the teacher maximize engagement. Mistakes become a new learning opportunity. Intelligence is not necessarily how much you know, but the degree to which you can apply what you know to problem solve. As teachers, we need to make our own efforts in this regard if we want to positively impact how learners think about their own efforts.

The following **quadrant** was created to help you organize your thoughts around the interactions between you and your students on this topic. Print the handout to refer to during the next few sections.

This is intended to help you map the current status of you in relation to the students in your care. Please follow the following steps to use this reflection tool.

Fixed vs. Growth Perspective Reflection Steps:

1) **Read** the handout to this point
2) **Fold a piece of paper into quadrants. Label the top right "Quadrant 1" top left "Quadrant 2", bottom right "Quadrant 3", and bottom left "Quadrant 4". Then determine whether you have a "fixed" or "growth" perspective.** If you have a "growth" perspective place your name in **Quadrants 1 and 2.** If you have a "fixed" perspective place your name in **both Quadrant 3 and 4.** Here is an example completed by Mr. Johnson where he indicates he has a "growth" perspective of his students:

Fixed vs. Growth Perspective

Quadrant 2 **Teacher Growth: Mr. Johnson** **Student Fixed:**	**Quadrant 1** **Teacher Growth: Mr. Johnson** **Student Growth :**
Quadrant 4 **Teacher Fixed:** **Student Fixed:**	**Quadrant 3** **Teacher Fixed:** **Student Growth:**

3) **Then**, think of each student you work with and write the name of each student on just 1 quadrant – either fixed or growth. Because you have placed your name first, you only need to place a student's name where you project he/she operates from.

Quadrant 2	Quadrant 1
Teacher Growth: Mr. Johnson **Student Fixed: John B., Barbara C., Dan T., Lucy K., etc**	**Teacher Growth: Mr. Johnson** **Student Growth : Janie B., Samuel M., Grace Y. , Peter N., etc**
Quadrant 4	**Quadrant 3**
Teacher Fixed: **Student Fixed:**	**Teacher Fixed:** **Student Growth:**

Note: If as a teacher you place your name in the "fixed" Quadrants, the same grouping of students would look like:

Quadrant 2	Quadrant 1
Teacher Growth: **Student Fixed:**	**Teacher Growth:** **Student Growth :**
Quadrant 4	**Quadrant 3**
Teacher Fixed: Mr. Johnson **Student Fixed: John B., Barbara C., Dan T., Lucy K., etc**	**Teacher Fixed: Mr. Johnson** **Student Growth: Janie B., Samuel M., Grace Y. , Peter N., etc**

Considering the Implications

In cases where a teacher holds the **expandable** view, then Quadrants 1 and 2 exist. In cases where a teacher holds the **fixed** view, only Quadrants 3 and 4 will exist unless you, as the teacher, adopt a growth mindset. If as a teacher you find that students give up too easily, don't attempt tasks that challenge them, or that they are overly apprehensive about receiving feedback – then it is an indicator the student is operating from a fixed view.

The goal is for **both** teachers and students to adopt an expandable view of ability and operate from a growth mindset so that challenges or mistakes are addressed with a **mutual commitment** to problem-solving so that learning and mastery result through **persistence**. Success is ultimately defined as persistence at a task/skill until mastery is achieved.

Quadrant 2 **Teacher has growth mindset** but **student has fixed capacity mindset** in learning tasks (+, -) **Recommendation**: teacher should teach students about brain, how a fixed view is not accurate or helpful, and how an expandable view aligns with neuroscience What this means: The Teacher is heading the right direction but may not overcome student's own view of him/herself.	**Quadrant 1** **Both teacher and student have a growth mindset** in learning tasks (+, +) Recommendation: Strengthen level of challenge/rigor appropriately, celebrate mistakes, require demonstration of engagement and learning process in conjunction with learning products What this means: Both are heading the right direction! Challenges are welcome and mistakes are expected but are viewed as part of the learning process.
Quadrant 4 **Both Teacher and Student hold a fixed view.** (-, -) Recommendation: Teacher should first recognize this as a problem and learn about the implications of a fixed view of student ability. Then, teacher should teach students about the brain, how a fixed view is not accurate or helpful, and start operating from a growth mindset. What this means: Teacher and student will view any/all mistakes as mutual confirmation that it is simply not in the cards for that student to achieve in that particular area. Unless a growth mindset is adopted by one or the other, each instance of failure provides evidence for Teacher or Student to insist they are destined to fail.	**Quadrant 3** **Teacher has a fixed view** social engagement **but student has an expandable view** (-, +) Recommendation: Teacher should first recognize this as a problem and learn about the positive characteristics demonstrated by students who hold an expandable view of their own ability. Then, after learning about the growth mindset the teacher could utilize the insights of those students who already operate from that perspective. What this means: Student is heading the right direction but will struggle to overcome the Teacher's approach and what they convey when student makes mistakes

As is described in the Growth Mindset Quadrants there are unique challenges when either a teacher or a student hold a fixed view of ability (-/+) and (+/-). Though it is less likely to be the case, **some students may hold a growth mindset even though their <u>teacher</u> does not**. In such cases a student will persevere even where the teacher expects much less of them. These students will turn to other resources (parents, other teachers, peers) for opportunities to collaborate or be challenged. They do so with the belief that with enough effort mastery is possible – even in spite of their interactions with their teacher. When students do make progress teachers with a fixed view of students may even express how "surprised" or "impressed" they are that the student succeeded.

Where teachers have the growth mindset and students **do not** – students will need to be directly taught that their orientation is not in their best interests. This does **not** mean that by teaching a student the characteristics of a growth mindset that it will automatically result in a student adopting that perspective. A student who has operated from a fixed view of their ability for many years will benefit from first learning about an alternative perspective and then experiencing future learning opportunities with an expandable view **with teacher support**.

Depending on the context you teach this can look a bit different, but students who have a fixed view of their learning potential rarely view challenges as something to overcome. In fact, they tend to put in the minimal amount of effort and hope for the best. As you know, "hoping for the best" is not a research-based strategy.

What follows is **7-Step process** for teaching students explicitly about the importance of both teachers and students operating from a growth mindset.

7 Step Process for Teaching Ability is Expandable

Step 1:
Complete the **Fixed vs. Growth Perspective Reflection sheet from above. At this stage you are naming your perspective and still predicting the perspective of your students based on what you know from interacting with them.**

Step 2:
Go to the IES Practice Guide on Encouraging Girls in Math and Science. Read the entire IES Practice Guide paying attention to all of the recommendations, including the recommendation to teach that ability is expandable through effort and persistence.

Step 3: Introduce Students to the Key Concepts of Fixed vs. Growth Mindset
One of the primary reasons for adopting a growth mindset is the emerging **neuroscience** research base that supports this view. While neuroscience may be a term students won't fully appreciate, it is a great vocabulary word to expose students to. There are many great videos and materials available online regarding the brain's structure, but it is important to find a video segment that illustrates that brains are altered through learning. You could show any number of video segments available through online sources such as the University of Oregon Brain Laboratory or Harvard's Center on the Developing Child.

Provide some overview of the brain structure, using a neuron diagram that you can locate online. Use the level of details appropriate to the grade level of your students. An example of description may include:

- An explanation of how the brain sends and receives information through its brain cells, also called neurons.
- Neurons can grow two types of branches: axons, which send information out, and dendrites, which take in information.
- When new branches grow, the number of synaptic contacts between neurons increases.

- Brain plasticity, or neuroplasticity, is the lifelong ability of the brain to make adjustments in the strength of connections, or synapses, between brain cells, following a new experience, such as learning.

Note that there is no difference between male and female brains in how they grow. Ask the students to **predict** who will do well in math over long periods of time if—

- Jennifer and John **both** work hard on the same problem, versus:

- John works hard on the problem, but Jennifer asks for and does an easier one because she doesn't think she can do the hard one.

Ask students to explain their responses. Summarize with the point that the female brain is just as capable as the male brain to grow following repeated practice and effort. The implication is that consistently avoiding learning tasks that ***could*** develop certain abilities could deprive our brains of the potential of growing those abilities.

Extending Student Thinking About the Expandability of Ability:

Give students brief assignments that allow them to apply the growth mindset concepts in ways that are personally meaningful. Make sure assignments are appropriate for the grade level. For example:

- Promote middle school students' understanding that abilities are expandable: ask students to write a letter to a younger student or a sibling who doubt their academic abilities. The purpose of the letter would be to encourage that person not to give up. In the letter they should explain that abilities can be changed through effort, using what they have learned during classroom activities.

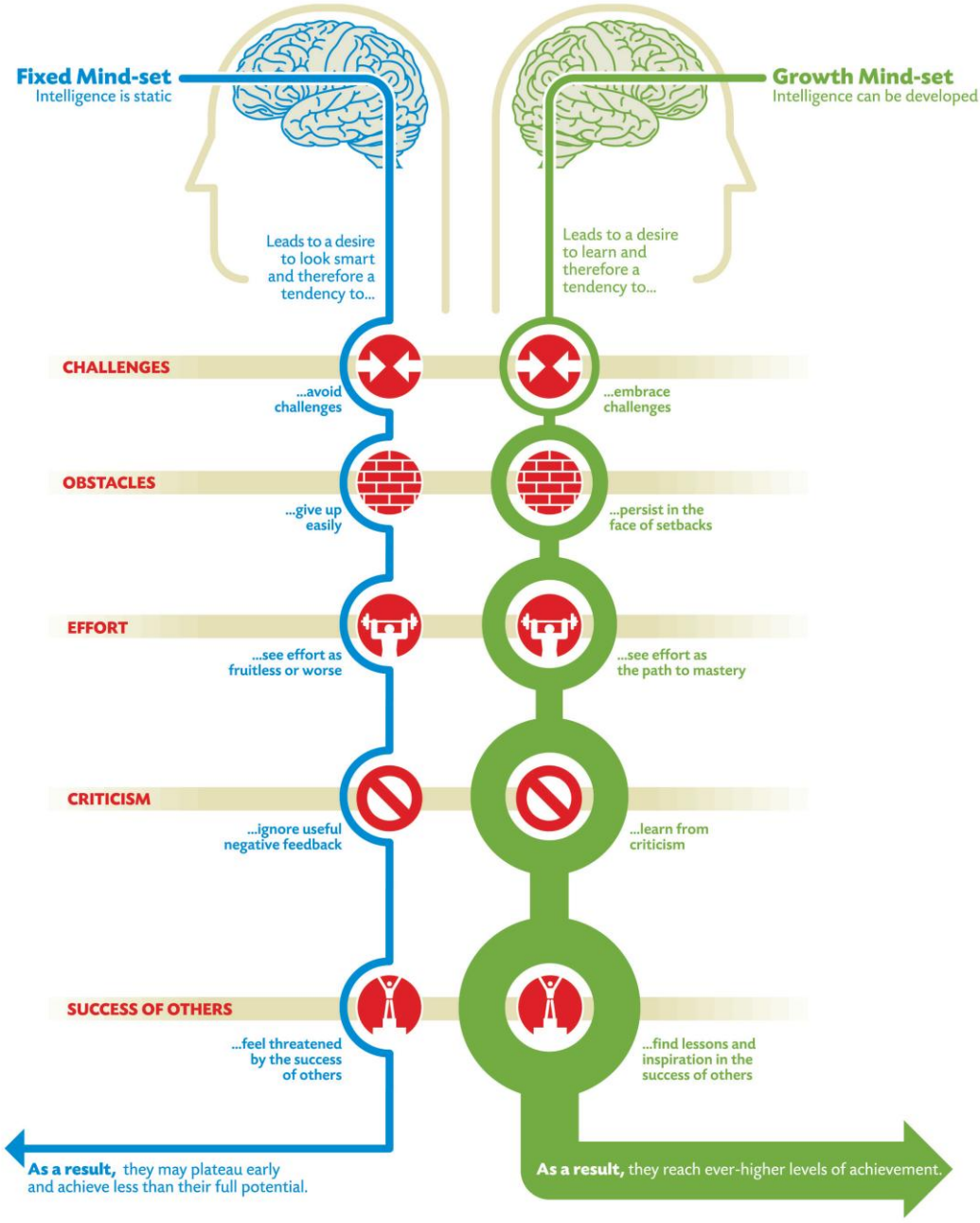
- Demonstrate to high school students to how everybody can experience breakthroughs in terms of academic abilities: have students reflect on and discuss examples from their own experiences—especially those positive examples they can offer where they "grew their own intelligence."

Concluding the Lesson

End the lesson by asking students to summarize key points taught during this lesson today. Ask each student to complete self-reflection questions such as:

After learning about the way that experience helps the brain to grow and make connections, I believe that my effort in learning can make a difference in my own growth:

Step 4:
Discuss with students the graphic overview of **Fixed Mindset vs. Growth Mindset.** This graphic from the Doing What Works website was developed by Nigel Holmes based on the research of Carol Dweck. It is a helpful overview for many reasons.



Step 5
Provide students with an opportunity to share **directly with you** whether they hold a fixed or growth perspective regarding ability. To do this, it may be helpful to simply provide a copy of the graphic organizer (above) and have them write their name on the side which best reflects how they think the majority of the time.

Depending on the context, students may also be asked to write out their rationale for selecting either fixed or growth perspective. If possible, including this in a larger standards-based unit where student perseverance is mentioned in the standard would be preferable. You will also want to record observations of the student that either support (or not) the perspective they have reported to you.

Stay as descriptive as possible. Share with students privately about your observations and how they affirm, or deny, what the student has reported.

Step 6

Return to **your original "prediction" of where students would place themselves** as being either fixed or growth minded. Review all of names of your students by checking off ones that were accurately predicted. Where student information was different than what you predicted, write the student(s) name in the appropriate Quadrant. Now, reflect again on the implications that exist now that you have information about the Quadrant you and each student function within. Consider what instructional adjustments you might need to consider making now that you have this information.

Step 7
Create an Action Plan
Use the following reflection sheet to identify areas where further action might be taken. Develop a prioritized list of actions and determine whether the focus of the learning is on strengthening your own growth mindset or the mindset of students. Research the topic further for situations where either you or your students continue to operate from a fixed mindset.

Reflective Questions for Teachers:

1) I provide positive and informative feedback to students that demonstrates I approach all learners through a growth mindset:
   Strongly agree Somewhat agree Disagree
   ✓ Comments:

2) I find alternate ways of supporting students to achieve mastery:
   Strongly agree Somewhat agree Disagree
   ✓ Comments:

3) I have been intentional about teaching the growth mindset to students and helping them recognize growth that can be attributed to effective effort, not innate ability:
   Strongly agree Somewhat agree Disagree
   ✓ Comments:

4) I provide consistent and structure opportunities for students to reflect on goals and connect the level of their effort, use of strategies, and current performance to their overall goals in learning:
   Strongly agree Somewhat agree Disagree
   ✓ Comments:

5) I have methods of collecting data on my own performance as a teacher and periodically review the consistency of my feedback to students to reinforce the growth mindset:
   Strongly agree Somewhat agree Disagree
   ✓ Comments: