Inspiring Student Learning

Increasing Intrinsic Motivation for Learning Mathematics

Presented at the 2014 National Council of Teachers of Mathematics Annual Conference

Dr. Michael Grote is retired k-12 math teacher and college education professor and currently a school improvement specialist with the Buckeye Community Hope Foundation. Contact: mikegrote@icloud.com

Grow Intrinsic Motivation by

- **Taking grades out of the spotlight**. Sure you can't eliminate grades, but grades do not have to be the primary reason for doing your assignments.
- **Using incentives only when appropriate**. Design your assignments to incorporate the characteristics of intrinsically motivating work whenever possible. Resort to incentives only if there is no good reason for doing the work.
- **Making work into play**. Remember Tom Sawyer's "whitewash the fence" example.

Autonomy

Increase the amount of Autonomy your students perceive in your classroom. You could try one or more of the following:

Task:

- Have regular one-on-one meetings with your students and ask them what kinds of tasks they prefer doing. Try to offer more of those kinds of tasks.
- Are there times when you can offer choices, e.g., different tasks that result in the same learning outcomes?

Time:

- Encourage your students to make a "to Don't" list and consider what they could stop doing that takes time away from productive learning.
- Look for opportunities for your students to set their own schedule regarding tasks.
- Is your grading system forgiving of early mistakes when the student eventually masters the content?

Team:

- Can you occasionally allow students to choose someone they would benefit working with rather than assign a partner?
- Can you teach students to tutor each other effectively?

Technique:

- Get feedback from your class on how it gets its work done. Do students have suggestions for improvements to processes or procedures?
- Focus on whether work is getting done, not how (unless there is a huge inefficiency).

Mastery

Mastery is the desire in each of us to be good at something and see ourselves improving.

Mindset

- Identify whether your students have a fixed or a growth mindset when it comes to learning mathematics. Those with a fixed mindset believe people are good at math or they are not. Those with a growth mindset believe that work and practice develop one into a better mathematician.
- Coach students with a fixed mindset to develop a more growth perspective by explaining the learning process of the brain or exposing them to anecdotes from books like **Talent is Overrated** (Greg Colvin), **Outliers** (Martin Gladwell), **Brain Rules** (John Medina) or **Mindset** (Carol Dweck).

The Right Amount of Challenge

- Differentiate your instruction so that students have material that is at the right level for them.
- Work with students to plan attainable goals.

Feedback

- Provide regular, clear feedback to keep students on track. Remember that praise is not the same as feedback.
- Acknowledge a personal best by a student.

Flow

- Observe your class and note when they are most productive.
- Monitor the tasks you create for the key characteristics of flow: right level of difficulty, clear goal, feedback.

Purpose

Purpose is the reason for doing something.The intrinsic desire to do something beyond ourselves requires a purpose that resonates with our very being or reaches out beyond our immediate self-interest to something bigger.

Purpose Motive

- Ask students what the purpose of your course is? See if they can come up with a 6-word sentence to describe their purpose for being in your course.
- When giving students a task, try to explain the *Why* as well as the *How/What*.
- Focus on the learning of the class in addition to the traditional focus on the individual.
- Can you incorporate a service learning component to some tasks?

Visuals

- As a team building exercise, have student design posters illustrating the class' purpose.

Stories

- Use purpose related stories in your classes and meetings.
- Recognize students for things they do that contribute to the class' purpose.

Belonging

Relationship Building

- Listen to and act on input from students regarding what would help them learn.
- The enthusiasm you show for the content and the quality of the lessons and materials you prepare are perceived by students as evidence of caring about them and their success.
- Know your students in terms of where they are academically, but also for their unique individual interests and characteristics.
- When planning a lesson think about it from the students' perspective. How would it work for you?

Inclusiveness

- Are your presentations and materials inclusive of students' culture?
- Can you connect content to their interests?

Classroom Climate

- Work to build a climate where the learning of the class is everyone's responsibility, not just the teacher's.
- Make the classroom "our room", not just the "teacher's room."

Other

Teacher as coach/manager; Students as athletes/workers

- Athletes who let their coaches do all the work would find it very hard to bring home a medal! Harry Wong summed it up when he stated: *"Whoever is doing the work is the one who is learning. In too many classrooms, the teacher is doing all the work."*
- William Glasser listed these four essential elements for an effective lead manager: *(how well do these apply to teaching?)*
  - The leader engages the worker in a discussion of the quality of work to be done and the time needed to do it, giving them a chance to add their input.
  - The leader shows or models the job so that workers can see exactly what is expected.
  - The leader asks workers to evaluate their own work for quality.
  - The leader is a facilitator in that he shows the workers that he has done everything possible to provide them with the best tools and workplace as well as a no coercive, non-adversarial atmosphere to do the job.

Resistant Students

Michael Pantalon (Yale School of Medicine) suggests asking two "irrational" questions for the purpose of moving others to action. For example, say a student is procrastinating about studying for a test. Instead of saying "You must study," ask two questions instead. (1) On a scale of 1 to 10, with 1 meaning not the least bit ready, how ready are you to study? After she offers her answer, ask: (2) Why didn't you pick a lower number? Asking why the number isn't lower is the catalyst. Most people who resist doing don't have an "yes-no" position, so don't ask a binary question. The 1-10 scale can expose a "maybe." As the student explains her reason for being a 4 instead of a 3, she announces her own reasons for studying. She moves from defending her current behavior to articulating why, at some level, she wants to behave differently. As she clarifies her personal, positive, and intrinsic reasons for studying, she increases the chances that she actually will study.