

How Problem Solving Approaches Help Boys Become Motivated Learners

Abigail Norfleet James, Ph.D

IBSC/Baltimore, MD

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Motivation

- Is there a difference between being unmotivated or motivated to fail?
- Where does need for achievement fit in?
- When students had a success orientation, they were less likely to use maladaptive self-protective strategies and more likely to become motivated to initiate and complete assigned tasks
 - Female students tended toward mastery orientation
 - Male students tended toward performance orientation

The Problem with Motivating Males

- Female students have a serious advantage in self-discipline
 - Differential development in pre-frontal lobes
- Males less likely to feel like they belong in coed school— greater sense of belongingness in a single sex school
- Verbal skills may not be as well developed
 - Hippocampus in males develops first on the right giving them a preference for icons (pictures)
- Many memory cues in school depend on episodic memory which is not a strength for males
- Males may have few friends who are actively involved in academic pursuits

Intrinsic vs. Extrinsic Motivation

- Female college students were found to be more motivated by intrinsic factors, male college students by extrinsic factors
 - Females work for personal reasons and social feedback, self-control rather than motivation resulted in better grades
 - Males work to make money or get a job
- Academic outcomes such as GPA, attendance, and connection to teacher and school affected academic motivation
 - Other studies found that academic outcomes are determined by intelligence, academic self-confidence, and self-discipline
 - This is a “chicken and egg” problem, which comes first, motivation or outcome?

Social Comparison vs Mastery Praise

- Social comparison praise
 - The idea is that doing better than others is what is desired – you're the best in the class
 - Comparison to others provides information about relative ability and is positive when it indicates superiority, may cost if it indicates relative inferiority, and top students may not work as hard as there is no one to push them to do better
- Mastery praise
 - Praise for doing better on a specific task was more motivating
 - Praise for attaining a personal best allows students to make progress no matter how well the rest of the class is doing

Students' Understanding of How They Learn

- Indications are that many students do not know how they learn, they just go through the motions and if they learn, they are smart, and if they don't then they aren't
- Most of those are boys, but not all!
- Give students something to do and you break through the belief that they are not smart
 - Just because the teacher says it doesn't mean the student learns it

Learning Through Problem Solving

- Making meaning from direct experience
 - Staged (class) or spontaneous (life)
- Start by asking what students know or observe – credit for prior knowledge
- Give students problems which require knowledge and understanding
- Teacher then assists students to make connections between observations or experiences and understanding the process (scaffolding)
- Students solve problems, they do not supply answers

Language Based Examples

- Develop alternative ways to present a concept or story – think *Hamilton*, but don't copy Miranda's approach
 - Look at *Stomp* on YouTube to see how ordinary items can be used to produce music
- Constructing sentences/paragraphs
- Links: Compare scenes in versions of the same play such as *Romeo and Juliet* – 1968 directed by Zeffirelli, 1996 *Romeo + Juliet*, and 1961 *West Side Story*
- Backstory: *The Crucible* by Miller uses the Salem witch trials as an allegory for the red scares in the 1950s, watch the HUAC hearings on You Tube

Math/Science Based Examples

- Focus is on the right process not the right answer
- Using science, demonstrate how reality affects that selection – is there proof that it happened that way?
 - In the book *Into the Wild*, a young man dies because he gets snowbound. Find a map of the area and figure out if there was a way he could have escaped. What was the weather during that time?
- Connections: Physics and sports
 - Why does spiraling a football (gridiron) increase accuracy?
 - How do the feet of sprinters and long distance runners hit the ground differently?

Technology

- Technology should be accessible by students in the classroom
- Teach responsible use: What is “fake news?” How do you identify it? Create some fake news – perhaps make a school-only-accessible blog of fake news.
- Compare sources: Have students find peer-reviewed reports and compare to Wikipedia
- Link past and present
 - Compare ancient history in the middle east with present events – location, players, issues
 - Weather events – compare present weather with 100 years ago, 200 years etc. ‘Year without summer’ Mt. Tambora

Connect Science to the World

- **Biology**

- Develop an inexpensive method to extract drinking water from sea water and include some plans for dealing with the by-products

- **Physics and construction**

- Using state-of-the-art building materials, design an inexpensive housing solution for the homeless

- **Culinary Arts**

- Chemistry is the basis of baking and the use of sugar, how does this affect the product?

- **Music**

- How does the difference in materials account for different sounds – silver vs. brass horns, steel vs. nylon strings, acoustic vs. electric instruments

Engage Your Students

- This is all about getting students engaged
- The more they do, the more they will be engaged
- The more you do, the less they will be engaged – why should they work, you are doing it all!
- Try one strategy in the next month