“Do We HAVE to Do This?”

What Research Tells Us About Student Motivation

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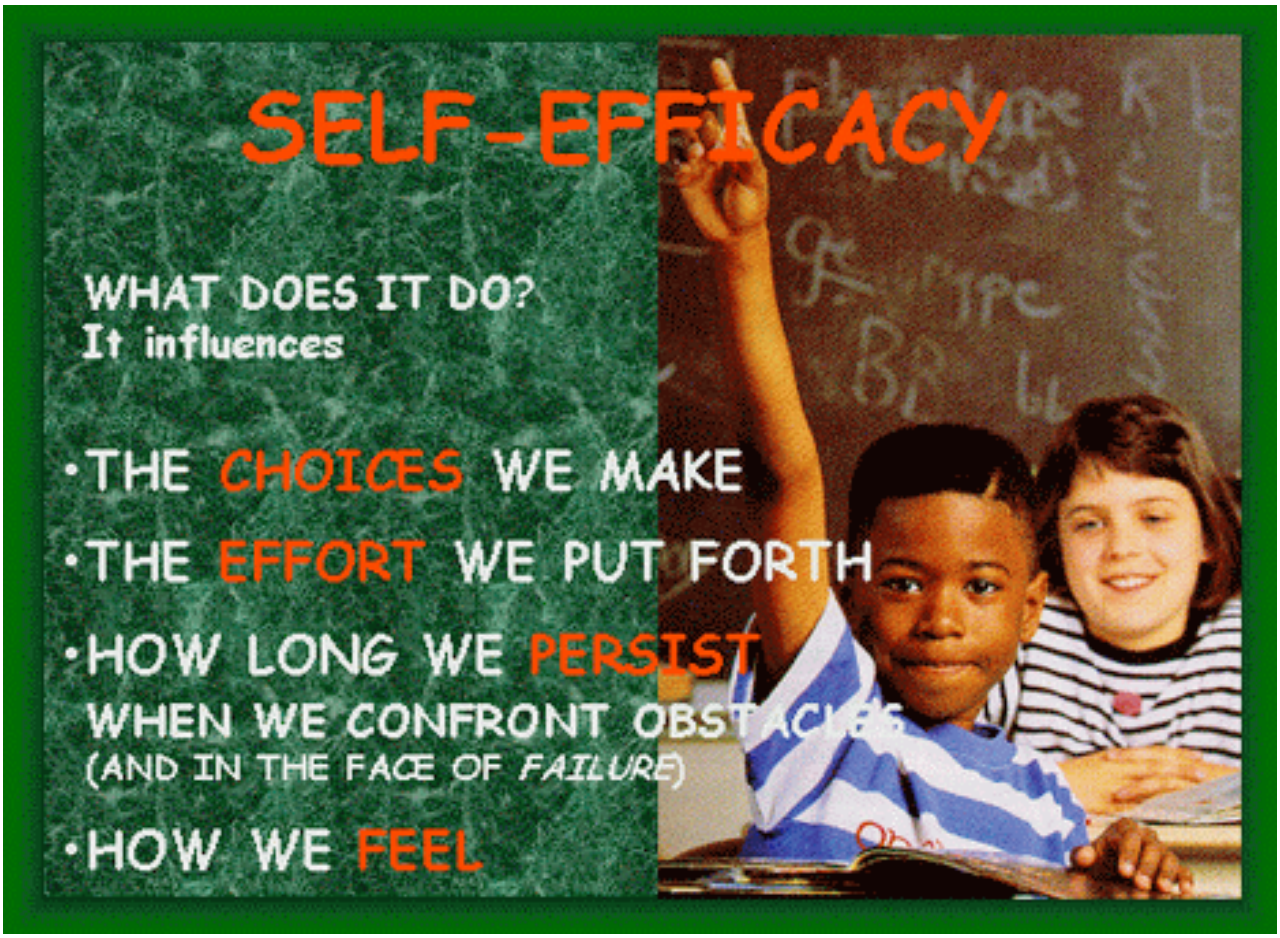

Albert Bandura (1925 -) popularized the term *self-efficacy*. He defines it as the part of our "self system" that helps us to evaluate our performance. Perceived self-efficacy refers to one's impression of what one is capable of doing. This comes from a variety of sources, such as personal accomplishments and failures, seeing others who are similar to oneself, and verbal persuasion.

Verbal persuasion may temporarily convince people that they should try or avoid some task, but in the final analysis it is one's direct or vicarious experience with success or failure that will most strongly influence one's self-efficacy. For example, a teacher may "fire-up" her students before a standardized test by telling the kids how great they are, but the enthusiasm will be short-lived if the test is completely beyond their ability or their perceived beliefs that they can actually do well.

People with high perceived self-efficacy try more, accomplish more, and persist longer at a task than people with low perceived self-efficacy. Bandura speculates that this is because people with high perceived self-efficacy tend to feel they have more control over their environment and, therefore, experience less uncertainty.

Zone of Proximal Development…ZPD

Zone of Proximal Development, an idea developed by Lev Vygotsky over one hundred years ago, seeks to define the process through which students effectively learn in cooperation with a teacher.

A student's Zone of Proximal Development, or ZPD, is defined as the student's range of ability with and without assistance from a teacher or a more capable peer. On one end of the range is the student's ability level without assistance. On the other end of the range is the student's ability level with assistance.

A classroom that makes the best use of all of its students' ZPDs should follow the following guidelines:

1 The teacher should act as a scaffold, providing the minimum support necessary for a student to succeed. The idea is to assist without denying the student's need to build his or her own foundation. The challenge for the teacher, then, is to find the optimal balance between supporting the student and pushing the student to act independently. To effectively scaffold the student, the teacher should stay one step ahead of the student, always challenging him or her to reach beyond his or her current ability level. However, if instruction falls outside of the zone (above or below a student's ZPD), no growth will occur.

2 To effectively scaffold students within their ZPDs, a teacher should also have an awareness of the different roles students and teachers assume throughout the collaborative process. The roles roughly resemble the following:

-teacher modeling behavior for the student
-student imitating the teacher's behavior
-teacher fading out instruction
-student practicing reciprocal teaching (scaffolding others) until the skill is mastered by all students in the classroom.

Resource:

Adapted from:

<http://www.wcer.wisc.edu/step/ep301/Spr2000/Jenna-B/zpd.html

Attribution Theory

- Task Difficulty
- Luck
- Innate Ability or Talent
- Effort

External (Controlled by other than Self)

- Task Difficulty
- Luck
- Innate Ability or Talent

Internal (Controlled by Self)

- Effort

Implicit Personality Theory

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Carol Dweck's early research on human motivation focused on helpless and mastery-oriented response patterns in schoolchildren (Deiner & Dweck, 1978, 1980; Dweck, 1975; Dweck & Reppucci, 1973). Some students, she noted, persist in the face of failure while others quit as soon as the going gets rough. In the 1980s she began investigating the self-theories that lie behind these behaviors, discovering along the way that students' implicit beliefs about the nature of intelligence have a significant impact on the way they approach challenging intellectual tasks: Students who view their intelligence as an unchangeable internal characteristic tend to shy away from academic challenges, whereas students who believe that their intelligence can be increased through effort and persistence seek them out (Dweck, 1999b; Dweck, Chiu, & Hong, 1995; Dweck & Leggett, 1988).

Students who hold an "entity" theory of intelligence agree with statements such as "Your intelligence is something about you that you can't change very much." Since they believe their intelligence is fixed, these students place high value on success. They worry that failure-or even having to work very hard at something-will be perceived as evidence of their low intelligence. Therefore, they make academic choices that maximize the possibility that they will perform well. For example, a student may opt to take a lower-level course because it will be easier to earn an A. In contrast, students who have an "incremental" theory of intelligence are not threatened by failure. Because they believe that their intelligence can be increased through effort and persistence, these students set mastery goals and seek academic challenges that they believe will help them to grow intellectually (Dweck, 1999b).

Dr. Dweck's research on the impact of praise suggests that many teachers and parents may be unwittingly leading students to accept an entity view of intelligence. By praising students for their intelligence, rather than effort, many adults are sending the message that success and failure depend on something beyond the students' control. Comments such as "You got a great score on your math test, Jimmy! You are such a smart boy!" are interpreted by students as "If success means that I am smart, then failure must mean that I am dumb." When these students perform well they have high self-esteem, but this crashes as soon as they hit an academic stumbling block. Students who are praised for their effort are much more likely to view intelligence as being malleable, and their self-esteem remains stable regardless of how hard they may have to work to succeed at a task. Therefore, it is reasonable to assume that these students are more likely to be willing to push through setbacks and reach their full academic potential (Dweck, 1999a; 1999b).

Books:

- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Random House.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality and development*. Philadelphia: Psychology Press.
- Elliot, A. J., & Dweck, C. S. (Eds.). (2005). *Handbook of competence and motivation*. New York: Guilford.
- Heckhausen, J., & Dweck, C. S. (Eds.). (1998). *Motivation and self-regulation across the life span*. Cambridge: Cambridge University Press.

What Are Classroom Rewards?

- ***Extrinsic rewards*** can be defined as rewards that come from an outside source such as the teacher. Rewards include the obvious bonuses such as prizes, certificates, special privileges, gold stars, stickers, candy gum, redeemable tokens, grades, or even money. Teacher praise is also considered to be an extrinsic reward as are more subtle signs of approval such as thumbs up signs, smiles, nods, hugs, or pats on the back.

- ***Intrinsic rewards*** can be defined as rewards that are inherent or the natural consequence of behavior. Some researchers prefer the term *reinforcers* to rewards because teachers use them to strengthen behavior (make it more likely to be repeated).

- ***Task-contingent rewards*** are available to students for merely participating in an activity without regard to any standard of performance (i.e. anyone who turns in a homework paper gets an "A").

* ***Performance-contingent rewards*** are available only when the student achieves a certain standard (i.e. anyone who has at least 93% correct responses on the homework paper gets a sticker).

* ***Success-contingent rewards*** are given for good performance and might reflect either success or progress towards a goal (i.e. anyone who has at least 93% correct responses on the homework paper or improves his/her last score by at least 10% receives a sticker).

Most researchers agree that task-contingent rewards are at best futile and at worst counterproductive. There are varying opinions about the need for either performance-contingent rewards or success-contingent reward.

Guidelines For Using Classroom Rewards

- Use the weakest reward required to strengthen a behavior. (Don't give candy if a sticker will do. Don't give a sticker if praise will do.)
- When possible, avoid using rewards as incentives.
- Reward at a high rate in the early stages of learning and reduce the frequency of rewards as learning progresses.
- Reward only the behavior you want repeated. (If you reward a long, verbose paper, expect to see lots more of them.)
- Remember that what is an effective reward for one student may not work well with another.
- Reward success, and set standards so that success is within each student's grasp.
- Bring attention to the rewards (both intrinsic and extrinsic) that are available for students from sources other than the teacher.
- Continually work towards a system that uses less extrinsic rewards.
- Before planning any kind of a reward, always ask yourself, "What are the probable long-term consequences of using this reward?" as well as "What is my short-term goal for using this reward?"

Adapted from Paul Chance, 1992, by Debbie Silver

The Learning Cycle

Debbie Silver, Ed.D.

Why Use the Learning Cycle?

- **Students learn through concrete experiences**
- **All students are given common experience from which concepts are developed.**
- **Students develop thinking skills**
- **Students generalize their learning to new situations**
- **Students share responsibility for learning**

There are several variations of the Learning Cycle, but most use a three-phase approach to teaching the lesson objectives. The purpose of the Learning Cycle is to develop learning situations that provide students with concrete experiences prior to the introduction of vocabulary or concepts. After students have been guided to construct the intended concepts, they apply their new knowledge in new situations. This allows them to generalize their learning and reinforces the newly developed mental structures.

A detailed explanation of each phase as well as a lesson plan based on the Learning Cycle follows.

Exploration Phase

In the Exploration Phase students are presented with a problem that requires them to use process skills to gather and organize data. During this motivational phase students are encouraged to manipulate materials and explore ideas without specific outcomes designated by the teacher. The teacher closely monitors group activities and guides students through the use of open-ended questions addressed to individuals and groups. The exploration phase provides common experiences from which all students can draw during the more directed phases that follow.

The Teacher's Role

During this phase the teacher sets up experiences that will motivate the learners. She facilitates interaction between the learner and the lesson materials. She facilitates by questioning, clarifying procedures, and monitoring interactions. Questioning should be done using the open-ended format so that students are provided the opportunity to explore the concept and come up with their own answers.

The Students' Role

The students pursue activity questions utilizing process skills to gather and organize data. Students compare their answers with those of others.

The Classroom Arrangement
Usually exploration activities are best conducted by students in small groups (using cooperative learning). Motivational open-ended questions to the large group may precede small group activities.

Exploration Phase	
The Teacher:	**The Students:**
• Motivates the learners	• Develop interest
• Facilitates with open-ended	• Develop common experiences questions
• Clarifies procedures	• Gather and organize data
• Monitors behavior	• Begin to explain concepts in their own words

Concept Development Phase

The Concept Development Phase of the cycle focuses on patterns that students find in the data they have collected and in the observations they have made. Students are guided to create explanations, classifications, or hypotheses. Based on the experiences of the students during the Exploration stage, teachers provide appropriate terminology and vocabulary as they give information and guide whole class discussions. Although teachers traditionally use "mini-lectures" in explaining concepts, materials such as textbooks, supplemental readings, audio-visual aids, and other resources can be use to clarify ideas.

Students are more likely to listen to and retain concepts presented in the Concept Development Phase because it follows the Exploration Phase where they have discovered its relevance. Students can communicate more easily with one another and with the teacher during the Concept Development Phase because of their shared experiences in the Exploration Phase.

The Teacher's Role

During this phase the teacher provides direct instruction for clarifying ideas and concepts to explain student experiences. She helps the students develop appropriate vocabulary and poses questions to clarify understanding.

The Students' Role

The students describe and compare their observations from data collected in the Exploration Phase. They begin to look for patterns that emerge. They present and share interpretations while drawing conclusions. They construct scientific concepts based on their experiences and the new information provided through lecture, discussion, reading, or other methods. They should begin using appropriate terminology and vocabulary related to the scientific principles involved.

The Classroom Arrangement

Whole class instruction can be used to introduce vocabulary, clarify concepts, and provide explanations. Instruction can vary from "mini-lecture" to videos, textbooks, or other instructional materials.

Concept Development Phase	
The Teacher:	**The Students:**
• Provides information	• Look for emerging patterns in collected data
• Develops the concepts	• Share interpretations of experiences with other students
• Clarifies the explanations	• Construct scientific concepts
• Directs whole group discussions	• Begin to use appropriate terminology

Concept Application Phase

The Concept Application Phase extends the discoveries made by the students in the Exploration Phase and the knowledge obtained in the Concept Development Phase by requiring students to explore in more depth through additional experimentation and/or discussion. They are encouraged to apply the concepts they have learned to "real world" situations. This phase serves as a connection between broad scientific constructs and students' daily lives. The Concept Application Phase can also introduce a new, related topic that can become the Exploration Phase of the next lesson.

The Teacher's Role

During this phase the teacher poses new situations or problems that can be solved using concepts developed during the previous phases. She provides indirect instruction by posing divergent questions. The teacher acts as observer and facilitator rather than as "imparter of knowledge." She monitors students closely as they are actively engaged in the learning process.

The Students' Role

Students interact with one another as they compare ideas and explanations. They are involved in active learning as they use their newly acquired skills and understandings to construct deeper meanings and broader applications of their discoveries. They apply their new knowledge to new, preferably "real life," situations.

The Classroom Arrangement

Cooperative learning in small groups enables students to share ideas and remain actively engaged in the learning process. Close teacher monitoring is essential to ensure student participation and understanding.

Concept Application	
The Teacher:	**The Students:**
• Poses new situations and divergent questions for newly learned concepts	• Apply newly learned concepts to new situations
• Closely observes and monitors student interactions	• Become involved in deeper meanings and extended implications of concepts

Discussion

Our observations have shown that using the Learning Cycle's "discovery approach" is a very effective way to teach. It provides preliminary concrete experiences that give all learners a more even starting point from which to construct the science concepts. Vocabulary and concepts are linked to common prior experience. Students are encouraged to become active rather than passive learners.

It should be noted that the model is cyclical. At any point students can move from one phase to another. Often they will move from one phase to another several times during the lesson. Exploration will lead to concept development that will require concept application which may lead to another exploration, and so on.

At all times during the learning cycle evaluation and discussion are integral parts of the process. Evaluation by the teacher as well as by the students is ongoing.

The Learning Cycle can be incorporated into most teaching situations with very little modification of classroom arrangement. It does not require extensive changes in traditional teaching materials. It primarily involves a re-ordering of the traditional elements of a lesson. Teachers become facilitators of learning rather than "tellers of facts." Students are encouraged to find their own answers within their own experiences so that the knowledge they acquire becomes meaningful to their lives. Students think about what they are learning and learn about how to think.

Teachers of all grade levels and all subjects can use the Learning Cycle to provide meaningful, positive learning experiences for their students.

Learning Cycle Check-List

Use the following check-list to evaluate lessons to determine whether they use the Learning Cycle format.

Exploration Phase	YES	NO
1. The lesson contains a motivational activity that provides common experiences.	___	___
2. Students are given sufficient time to use materials and explore open-ended questions.	___	___
3. Students are asked to collect and organize data.	___	___
Concept Development Phase		
1. The concepts and vocabulary developed are appropriate outgrowths of the exploration activity.	___	___
2. Explanations are based on emerging patterns observed in the exploration phase.	___	___
Concept Application Phase		
1. Students are required to apply newly learned concepts to "real life" situations.	___	___
2. Students interact with one another and compare ideas and explanations.	___	___