

## Motivation: A Key to Effective Teaching

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"The teacher has to have the energy of the hottest volcano, the memory of an elephant, and the diplomacy of an ambassador" (p. 47). Jaime Escalante, termed "The Best Teacher in America" by Mathews (1988), coined this description of a teacher from his personal experiences and successes. Escalante earned this recognition through a series of controversies regarding the success of a group of Hispanic calculus students on the national Advanced Placement examination. Having Hispanic students do well on such a test is nothing special in and of itself. Escalante received recognition primarily because of his ability to transform underprivileged students in a troubled school into some of the highest achieving high school calculus students in the country. Such a feat is extraordinary and quite intriguing to many teachers. If a skilled teacher in a poor, inner city, primarily Hispanic school in Los Angeles can help his students reach "the highest possible degree of personal development" (Meek, 1989, p. 47), then it seems that other teachers across the country should also be able to achieve similar results. The key, according to Escalante, is motivation: "My skills are really to motivate these kids, to make them learn, to give them *ganas* the desire to do something to make them believe they can learn" (Meek, 1989, p. 47). It sounds easy. There are volumes of information on motivation from psychological motivation to intrinsic and external motivation to *ganas*. The problem is that motivating students is not a simple, one-step process. Implementation of motivation strategies is very personal and depends on the teacher's personality and style. It involves a wide variety of learning experiences for the student. It is also dependent on the structure and routine of the class period. Since motivation seems to play an important role in teaching, it is important for teachers to become familiar with various aspects of motivation.

This article presents aspects of motivation that are discussed in the literature. The first section deals with how the individual style and personality of the teacher is of utmost importance in motivating students to learn. The second section describes how interaction and worthwhile tasks can be used to motivate students. Finally, the last section focuses on the environment in which students learn.

***Motivation Through Teacher Personality***

One aspect of motivation, probably the hardest to change, lies in the personality of the teacher. Like all human beings, teachers perceive the behaviors that are appropriate in a given environment. The classroom environment can be one of the most demanding environments on individuals' perceptions of their self-worth. In addition, from my own experience, most children exhibit the ability to see through a person's actions, recognizing those actions as genuine or fake. Consequently, the teacher's task of exhibiting the characteristics necessary to motivate a class is a careful daily process that inevitably meets some failure and need for improvement.

Various characteristics of teachers are perceived as important for motivating students to learn. In Escalante's opinion, the required characteristics of a motivating teacher are obvious concern and caring for the students. According to Meek (1989), Escalante explained that "a teacher has to possess love and knowledge and then has to use this combined passion to be able to accomplish something" (p. 47). As stated by Vasquez (1988), "Student perceptions of whether the teacher cares for them have meaningful effects on their performance and behavior" (p. 248). Vasquez compiled several studies and sources that indicate the importance of caring in a teacher who motivates students to learn. He noted, "Students who perceived that, while teachers would not lower their standards for them, teachers were willing to reach out to them and provide needed assistance in practical ways, were the highest achievers" (p. 249).

While love and caring seem to be the most important characteristics for a teacher to exhibit, some writers also include humor and high expectations of students. Hunsaker (1988) claims that "the main value of humor in the classroom lies in its use to stimulate, illustrate, motivate, and ease tensions" (p. 285). Weaver and Cotrell (1987) studied the effects of humor in the classroom. They explain that

In the classroom, students want most to see instructors as real human beings. One student [*sic*] said it accurately when he said, "It's not so much a sense of humor, they need to show students that they're human (Tee Travick). A warm, genuine, sense of humor can reveal humanness comfortable, secure attitude with themselves as instructors, with their course material (knowledge), with their students, and with their relationship with the students. (p. 169).

Weaver and Cotrell (1987) established a ten-step, systematic sequence for becoming more comfortable using humor in the classroom:

1. Smile/Be lighthearted.
2. Be spontaneous/natural.

- a. Relax control a little/break the routine occasionally.
- b. Be willing to laugh at yourself/don't take yourself so seriously.
3. Foster an informal climate/be conversational and loose.
4. Begin class with a thought for the day, a poem, a short anecdote, or a humorous example.
5. Use stories and experiences that emerge from the subject matter. Use personal experiences.
6. Relate things to the everyday life of students. Read the student [*sic*] newspaper. Listen to "their" music; see "their" movies.
7. Plan lectures/presentations in short segments with humor injected. Plan a commercial break. Use a slide or overhead.
8. Encourage a give-and-take climate between yourself and students. Play off their  
comments. Learn their names.
9. Ask students to supply you with some of their jokes, stories, or anecdotes. Share these.
10. Tell a joke or two. Do outrageous things. Admit you're no good at it. Appear human. (p. 170)

Along with using humor, it has been found that teachers who motivate students have high expectations of them. One of Escalante's highest achievements was taking students tracked in general mathematics and pushing them to accelerate to algebra and the calculus sequence. "Escalante thought of his students as murderers. They killed time. He saw them do it everyday. They were lazy" (Mathews, 1988, p. 98). Most educators would think of these ideas as negative. Escalante, however, was merely seeing the potential of bright minds being wasted. He had higher expectations of what his students could accomplish than the typical remedial mathematics teacher. Vasquez (1988) indicated that "high expectations are communicated to the student through different types of cues, verbal or nonverbal, and the student's performance is consequently affected" (p. 244). He emphasized that students are affected by the high expectations of a

teacher even if the student has negative expectations about that teacher. Glasser (1989) indicated that students will often work harder in a job at McDonald's than in school because they have been given a standard for quality work. According to Glasser (1989), the primary prerequisite to a solid, motivational routine is an identifiable standard of quality. When this quality is attained and explained to the students, they will work hard

to maintain it. Teachers can determine a standard of quality and expect students to meet that standard. When teachers set a sufficiently high standard with clearly specified ways of attaining that standard, students will begin to have more success in meeting high expectations.

### ***Motivation Through Interaction and Worthwhile Tasks***

Although a teacher's personality is of great importance in motivating students, teachers can also elicit students' desires to learn by a variety of teaching techniques. Most teachers think that motivational teaching has to be entertaining; this perception is not necessarily accurate. As discussed in the previous section, much of motivation is dependent on the teacher's personality; consequently, the learning experience will depend on the interaction between the lesson structure and the teacher's personality. Teachers must be comfortable with themselves as well as with the tasks they are using in their lessons. Palardy and Palardy (1987) point out that "regardless of the cause, and regardless of the teachers' years of experience, teachers who are uneasy are going to communicate that uneasiness to their pupils. When this happens, the door to restlessness among pupils is wide open" (p. 87). As a teacher attains sincere concern for the students while allowing humor and expectations to increase, students' restlessness will decrease and learning tasks will motivate students more easily.

Also important to any learning experience is the interaction between the teacher and students. In his book *High Impact Teaching*, Brown (1988) emphasized the following statements repeatedly: "Teaching is interaction that facilitates learning. If you can't interact with them, you can't teach them" (p. 10). The reason many teachers cannot interact with students is that they have not developed respect for the students.

Brown (1988) presented five postulates for establishing and maintaining an atmosphere of mutual respect between teachers and students:

- Teaching is interaction that facilitates learning.
- Differences must not only be tolerated, they must be affirmed.

- Values are neither right nor wrong; they simply exist in all of us.
- Freedom to choose is one of the most precious rights we have.
- Those who dare to teach must never cease to learn. (pp. 7-8)

Even though these statements seem basic to any foundation of education, they are seldom fully used. For instance, the second postulate encourages the affirmation of differences; yet most teachers treat all students alike. All students can do the same work; they can all be treated the same way. Such attitudes interrupt the interaction that is being nurtured. Not all students want to go to college; not all students want to make a lot of money or live as middle class citizens. When a teacher can accept those differences, the teacher has opened a door to interaction. Instead of having a class full of students, the teacher will have, for example, a "specialist" in 4 x 4 trucks, another "specialist" in rock music, and still another "specialist" in street talk or rap. Drawing from the expertise of these specialists, the teacher has many additional areas from which to present illustrations and real situations that can create the desire for students to learn. Brown (1988) states that "regardless of the lifestyle pursued, its quality is improved by the knowledge and skills acquired through active participation in the learning process" (p. 36).

Another of the postulates that deserves comment is "those who dare to teach must never cease to learn" (Brown, 1988, p. 8). Society is changing every day. Consequently, the subjects taught are also changing to meet the needs of this new society. In addition to the subject areas, teachers also need to be aware of student lifestyles. In an article on developing humor, Weaver and Cotrell (1987) point out, "One factor that creates distance between instructors and students is that the interests of the instructors [*sic*] vary dramatically from the interests of students" (p. 174). They went on to encourage reading the student newspaper, going to student-oriented movies, listening to "their" music, reading some of "their" books or magazines, attending student events, or even watching music videos like those on *MTV*. An instructor's interest in these events reveals a caring attitude toward the students (Weaver & Cotrell, 1987). Teachers who feel they can come in and teach their subject matter without taking the initiative to learn more about their students' interests are losing a great motivational technique. For many teachers, learning about their students' lives will be a unique challenge; yet it is essential in order to be the type of teacher that will truly impact students' lives.

The teaching techniques discussed thus far have dealt specifically with promoting interaction in the classroom. There are several other techniques that

have been found to be very motivational. One of these techniques is cooperative learning. Escalante implements cooperative learning as a team approach: "I make them believe that we have a team which is going to prepare for the Olympics" (Meek, 1989, p. 47). The "Olympics" or goal to be achieved can be determined by the teacher or the class. For Escalante, it was the Advanced Placement calculus examination. For another teacher, it may be an organizational competition, college, a group or school project, or simply the next unit test. Again, an important aspect about any technique used is that it must allow the teacher to feel comfortable with its implementation. Much has been written recently on cooperative learning. Brown (1988) recommends the use of the THINK-PAIR-SHARE model where students take time to develop answers to important questions, share their answers with a partner, and then reveal their results to the class in order to encourage the participation of each student in the class. In my classroom, I have used this method to help shorten the amount of time spent reviewing homework. Each student has a class partner with whom to compare the solutions to difficult problems. If a pair requires help after discussing a problem, we review the difficult problem as a class. Since the desired outcome of any motivational strategy is participation by each student, this type of cooperative learning can be a very effective strategy for teachers to use.

Many studies include the use of competition within the cooperative learning context. In fact, Slavin (1988) has conducted extensive research on what he calls "student team learning." This approach to instruction entails the use of student teams, each working cooperatively, competing as groups with the other student teams in the class. Many school systems have utilized student team learning with much success (Allen & VanSickle, 1984; Frechtling, Raber, & Ebert, 1984; Lockwood, 1988). Maller (1929), a predecessor of Slavin, indicated, "In any study of incentives the element of competition holds a prominent place. It usually causes an act to be performed better or faster than it is performed by others or than the individual himself performed it before" (p. 9). Maller's study compared many elements of competition and cooperation. One study that he cited reported "that competition between groups will bring forth greater effort than individual work without competition" (Maller, 1929, p. 9). Many teachers have incorporated strategies involving competition, such as student team learning, into the routine of their classrooms. The routine starts with the teacher's assignment of students to learning teams. The teacher then presents a lesson, and the students work within their groups to master the concepts. At the end of a unit or a week, the teacher gives individual quizzes and compares team scores or team improvements; some teachers conduct a type of tournament during which some sort of quiz is given. Davidson (1990) has edited a handbook entitled *Cooperative Learning in Mathematics: A Handbook for Teachers*, which is an excellent resource for a variety of cooperative learning strategies, including competition.

Maller's (1929) study pointed out that there are many factors that must be taken into consideration when using competition. Gender differences, age differences, homogeneity of the group, and fatigue of competition were all noted as factors that might influence this motivational technique. More recently, Peterson and Fennema (1985) concluded that competition is more motivational for boys and may even have a negative effect on girls. They also reported that girls performed better in cooperative learning environments while these environments were statistically ineffective for boys. Although Peterson and Fennema did not study the combined effect of cooperation and competition, Manos (1988) showed that students in a delinquency prevention program benefited from and enjoyed student team learning which involves both cooperation and competition.

Creative problem solving is another motivational tool that is gaining in popularity. Since the teacher is attempting to relate to the students' environment, it is important to see the way in which students would solve problems. Brown (1988) explains it this way:

An effective way to solicit contributions indicating what students already know is through a process of creative problem solving. You may begin by having your class engage in brainstorming exercises designed to produce possible solutions for problems that affect the human condition. (p. 39)

This technique is motivational in that it requires eliciting responses from each student. It must be in a context of learning in which no one would feel exempt. Consequently, a teacher would not want to start with "You are an engineer," or use labels that may elicit a negative response from their students. Brown (1988) encourages the use of certain global issues to develop knowledge that is "critical to one's existence irrespective of culture" (p. 38). Such issues will provide a context for problem solving but does not exclude students due to cultural distinctions or personal values. In another context, Schwartz (1981) devotes an article to resources and ideas that can be used to generate mathematical problems related to global issues:

A unit on percentages, fractions, bar or circle charts, graphs, sequences or averages can be designed using variables such as population growth, pollution, hunger, energy, resource depletion, or arms expenditures for sample problems. Another possibility is to focus on one particular global issue (for example, energy, the arms race, population growth, or hunger) as a theme for teaching a variety of mathematical concepts and techniques. (p. 19)

Schwartz also recommends using newspaper articles, magazines, and

government documents as excellent sources for problems.

In agreement with Schwartz's (1981) recommendation to use newspapers as sources for mathematics problems, Fennell (1982) discusses possible units of instruction that could be generated almost completely from any newspaper. His units focus on comparative shopping and estimation activities, buying and furnishing houses, and graphing, probability, and statistics. Miller (1988) uses Tuesday's *USA Today* to get the latest National Football League statistics. He uses this material to develop statistics and probability problems in his classroom. He reports, "On a typical Tuesday class, students race to enter the new statistics so they can see where their favorite teams show in the standings" (Miller, 1988, p. 46). *USA Today* often carries many statistics, graphs, and tables that can be used in developing creative problems. Using such sources for problem solving will generate motivation as well as a context for learning that will provide future benefits for the students.

Brown (1988) indicates, "One strategy for reducing the ability of students to predict what will take place in the classroom is the use of counter-intuitive interventions. By definition, things which fall into this category defy immediate comprehension by most students, but are not incomprehensible" (p. 48). Brown includes many different things as counter-intuitive:

Selections from Ripley's "Believe It or Not," optical illusions created by mirrors or straight lines, perpetual motion displays, dancing mothballs in a solution of vinegar and water, and creative uses of the center of gravity for balance are examples of things that work well. (p. 48)

Escalante used a counter-intuitive strategy to help students understand inverse functions: "A plastic monkey climbed up and down a small pole to illustrate the inverse function, exchanging  $x$  for  $y$ " (Mathews, 1988, p. 118). Brandes (1983) recommends the use of optical illusions as a mode for discussing geometric topics such as angles, symmetries, transformations, and parallel and intersecting lines. Davis (1982) used the *Rubik's Cube* to generate solution algorithms and develop applications of permutations and set concepts. Brown (1988) might define these types of analogies as "absurd because of their apparent lack of similar qualities. The key to using them successfully is in having students identify the similarities that exist" (p. 55).

The ideas presented in this section were a selection of motivational techniques that can be utilized by teachers. The concern shown by teachers in taking the time to find the techniques that best fit the class and allow the teachers to feel comfortable and professional is essential to motivating students. As new

techniques are tried, comfort with these techniques is created. Eventually, the teacher will have a wide variety of techniques that will allow him or her the freedom to create new learning experiences that motivate the students.

### *Motivation Due to Environment*

Although the personality of the teacher and the learning tasks in the classroom can be developed to create more effective teaching through motivation, a quality atmosphere for learning in the classroom can also be a motivational factor that contributes to effective teaching. Most teachers have experienced that, as the year progresses and the pressures mount, there is a tendency to limit the creativity in lesson plans in order to survive until the next holiday. Although it would be desirable to come up with some dynamic way of presenting the next topic, the stack of papers on the desk leaves little time for the teacher to do anything beyond the minimum. Because times like this will occur, it is good to know that there are methods that can be used to maintain a motivating environment within a pressured routine. Escalante used several motivational techniques with his traditional teaching methods. In his school he was known for handing out large amounts of homework as well as daily quizzes. Mathews (1988) remarked, "He passed out homework as if it were vitamin C. The more he gave, he thought, the better off they would be" (p. 120). In addition to the large amounts of work, Escalante expected the students' work to meet a certain standard of quality. For him, the use of these "routines" was as motivational as other techniques.

Since motivation can be facilitated by the classroom atmosphere, it is important to look at some of the aspects of this atmosphere. Routine is one area that can greatly affect the classroom. Johnson (1982), a mathematics teacher in Wisconsin, described his use of routines to create a better learning atmosphere. The routines he developed allowed his students to attain the quality of learning that he wanted to provide. He uses routines for the first five minutes of class, checking homework, presenting new material, giving new homework, the last five minutes of class, and other elements that are a part of a typical class period. By clearly defining his routines, he was able to encourage the standard of quality he desired in his students' work. The use of routines can establish a comfortable atmosphere for learning because students know what to expect. It is important, however, that these routines not become mundane and boring. Establishing classroom routines that include the motivational techniques previously discussed will help prevent the routines from becoming mundane.

Johnson (1982) feels that his classroom routines help promote student success. During his routine for the end of the class period, his greatest goal is "to have the students leave class with confidence knowing that they have succeeded in

mastering the objectives for the day" (p. 40). Having the students leave the classroom with a feeling of accomplishment is important in maintaining a motivating environment. When a student feels that he is succeeding in a class, he will continue to build the intrinsic motivation to succeed (Vasquez, 1988). If the students can leave the classroom feeling that they are more competent than before they started to learn and their work can be recognized as a good job by anyone's standards, including their own, then quality education has been achieved.

Along with the classroom routines and the development of success of students comes the inevitable in any classroom environment discipline. Since motivated students would be indicated by students who are on task, act responsibly, and show good human relations, teachers who maintain effective discipline elicit characteristics in students that are important to motivating students. There are many articles about motivation as well as articles about discipline. The main ideas discussed in most of these articles stem from teachers' desires for students to have a quality education. A teacher who truly cares for the students will maintain consistent discipline because of its effects on learning, regardless of the students' dislike for such discipline. Many techniques can be used. Among these techniques is the use of preventative strategies that focus students' attention on behaviors to attain rather than on behaviors to avoid. Palardy and Palardy (1987) discuss nine preventative strategies:

1. Teachers must feel comfortable with themselves, their pupils, and their subject matter.
2. Teachers must believe in their students' capacity and propensity for appropriate classroom conduct.
3. Teachers must ensure that their instructional activities are interesting and relevant.
4. Teachers must match their instructional activities with their pupils' capabilities.
5. Teachers must involve their pupils in setting up "the rules".
6. Teachers must make certain that their pupils know and understand "the routine."
7. Teachers must identify their problem times.
8. Teachers must remember that pupils are not "little adults".

9. Teachers must give evidence that they genuinely like and respect their pupils. (pp. 87-89)

Most of these techniques can be seen as caring actions taken by a teacher whose role goes far beyond merely being a school district employee.

## ***Conclusion***

Motivation is a combination of many different aspects that comprise a part of teachers' pedagogical knowledge. Teachers must realize that to maintain and be successful with all of the techniques at all times is impossible. Gaining experience and using some of these techniques will help any teacher feel a little better about the quality of his or her teaching. As a professional educator, the teacher must realize that the quality of a learning experience lies in the teacher's ability to create that quality. Escalante puts this idea into perspective: "The owner of the future will be the person who is the owner of his or her own human resources, and human resources are the product of high quality in education" (Meek, 1989, p. 47). Teachers provide an extremely important product: the future. If we are going to maintain quality in that product, it will require the use of all the potential effectiveness within each individual teacher. The words of a former Teacher of the Year in the Philadelphia schools are a challenge to all teachers: "Human beings learn best by example and by doing; if our students see us doing, it is possible that they may do more themselves" (Jantzen, 1988, p. 33).

## **References**

Allen, W. H. & VanSickle, R. L. (1984). Learning teams and low achievers. *Social Education*, 48, 60-64.

Brandes, L. G. (1983). Optical illusions: A presentation for high school mathematics students. *School Science and Mathematics*, 83, 149-158.

Brown, T. J. (1988). *High impact teaching: Strategies for educating minority youth*. Lanham, MD: University Press of America.

Davidson, N. (Ed.). (1990). *Cooperative learning in mathematics: A handbook for teachers*. Menlo Park, CA: Addison-Wesley.

Davis, T. (1982). Teaching mathematics with Rubik's cube. *Two-Year College Mathematics Journal*, 13, 178-185.

Fennell, F. (1982). The newspaper: A source for applications in mathematics. *Arithmetic Teacher*, 30(2), 22-26.

Frechtling, J., Raber, S., & Ebert, M. (1984). *A review of programs and strategies used in other American school systems for improving student achievement*. Rockville, MD: Montgomery County Public Schools. (ERIC Document Reproduction Service No. ED 255584)

Glasser, W. (1989, September). Quality is the key to the disciplines. *Education Digest*, 55, 24-27.

Hunsaker, J. S. (1988). It's no joke: Using humor in the classroom. *Clearing House*, 61, 285-286.

- Jantzen, E. (1988, January). An approach for overcoming student passivity. *Education Digest*, 53, 33.
- Johnson, D. R. (1982). *Every minute counts*. Palo Alto, CA: Dale Seymour.
- Lockwood, A. T. (1988). Cooperative learning. *National Center on Effective Secondary Schools Resource Bulletin*, 4. (ERIC Document Reproduction Service No. ED 294853)
- Maller, J. B. (1929). *Cooperation and competition: An Experimental Study in Motivation*. New York: Macmillan.
- Manos, M. J. (1988). *Youth development project: Preventive intervention in delinquency. Three year evaluation report 1984-1987* (Report No. 338). Honolulu: Hawaii State Department of Education. (ERIC Document Reproduction Service No. ED 312573)
- Mathews, J. (1988). *Escalante: The best teacher in America*. New York: Holt.
- Meek, A. (1989). On creating ganas: A conversation with Jaime Escalante. *Educational Leadership*, 46(5), 46-47.
- Miller, M. (1988). Using NFL statistics to teach the spreadsheet. *Computing Teacher*, 15(6), 45-47.
- Palardy, J. M. & Palardy, T. J. (1987). Classroom discipline: Prevention and intervention strategies. *Education*, 108, 87-92.
- Peterson, P. L. & Fennema, E. (1985). Effective teaching, student engagement in classroom activities, and sex-related differences in learning mathematics. *American Educational Research Journal*, 22, 309-335.
- Reis, E. M. (1988, April). Effective teacher techniques: Implications for better discipline. *Clearing House*, 61, 356-357.
- Schwartz, R. (1981). Relating mathematics to critical global issues. *Journal of Developmental and Remedial Education*, 5(1), 19-20.
- Slavin, R. E. (1988). *Student team learning: An overview and practical guide* (2nd ed.). Washington, DC: National Education Association.
- Vasquez, J. A. (1988). Contexts of learning for minority students. *Educational Forum*, 52, 243-253.
- Weaver II, R. L. & Cotrell, H. W. (1987). Ten specific techniques for developing humor in the classroom. *Education*, 108, 144-169.