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**STEPHEN F. AUSTIN STATE UNIVERSITY  
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## FOREWARD

The Stephen F. Austin State University *Journal of Education* is published by the University's School of Education in Nacogdoches, Texas. Our purpose is to provide a forum for the interchange of ideas concerning the improvement of educational opportunities for the citizens of the State of Texas as well as the nation.

The editor solicits for publication manuscripts of any length which will assist in the improvement of education at all levels. Personal experiences, descriptions of techniques, research, theory development, reviews of research and books, or position papers may be submitted.

Submitted manuscripts will be reviewed by the editor and three committee members. Editing rights are reserved by the *Journal*. Manuscript requirements are outlined on the inside of the back cover.

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## **Coping with Creativity**

Mary Appleberry

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Giftedness has been defined in many ways. The current U.S. Office of Education definition states:

Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs in order to realize their contribution to self and society.

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

- \*1. General intellectual ability,
  - 2. Specific academic aptitude,
  - \*3. Creative or productive thinking,
  - 4. Leadership ability,
  - \*5. Visual and performing arts,
  - 6. Psychomotor ability.
- \* Starred items indicate the types of ability to be considered in this article.

According to Clark, (1) gifted and talented children have the "... ability to think in abstracts, to generalize, to solve complex problems, and to see unusual and diverse relationships which distinguishes them from those of more average ability."

Sellen and Birch (5) feel talent is usually judged by products and accomplishments. These authors believe that talent and creativity may exist in the same person. They advocate confluent (flowing together) education combining home, school, and community in which children of extraordinary ability will receive nurturance to enable them to flourish. In addition to the stimulation of associating with their gifted peers, gifted/creative students can develop their potential through the assistance of specially qualified teachers who take

an interest in them. Artist-teachers and adult mentors are valuable individuals who can foster the talents of students in music, art, or other performing arts.

Creativity has been described by Getzels and Jackson (3) as "the ability to produce new forms, to conjoin elements that are customarily thought of as independent or dissimilar; not merely the propensity for seeing the bizarre but rather the aptitude for achieving new meanings having social value."

Guilford (4) describes such intellectual activities as divergent thinking, in which from a beginning stimulus the individual generates as many new and different ideas as possible. Creative individuals are able to give novel, unusual responses, often through elaboration of methods to reach a goal or solve a problem.

Because of their propensity for giving unexpected responses, creative students may not score as high on traditional tests of intelligence as their gifted but less creative peers. Also, creative students tend not to be popular with teachers who expect conformity and convergent answers in the classroom. Woe betide the creative child who colors his windmill blue when the teacher has decreed that they should *all* be yellow!

Probably the gifted students with the highest capacity for worthwhile achievement are also highly creative. For them to receive appropriate education a number of suggestions follow:

1. Association with gifted peers on a regular basis.
2. An atmosphere which is challenging and stimulating.
3. A classroom atmosphere in which divergent thinking and flexibility are stressed.
4. A classroom filled with a variety of materials, including learning centers.
5. Free access to the library, music materials, audio-visual materials, and other resources for learning.
6. Teachers who are supportive and tolerant of unusual ideas and responses.
7. Teachers who use open-ended questions to stimulate high-level thinking.
8. Teachers who respect individual dignity and value originality.
9. Teachers who teach art techniques, furnish media, and allow students to work with the materials freely to express their own ideas.
10. Teachers willing to bend the restrictions of time and schedules occasionally to allow completion of a product.
11. Teachers who have a sense of humor and who genuinely enjoy working with gifted/creative students.

In addition to the adaptations mentioned above, gifted/creative students also must have enough structure and well defined parameters to help them work creatively within limits so that they are not constantly going off on tangents. It is important for them to learn certain conventional skills such as handwriting, spelling, reading skills, and mathematical facts thoroughly and correctly so that they can use them in creative ways. Regardless of their impatience with drill, high standards must be maintained in skills so that students' creative



products will have quality. It is a real challenge to the teachers of gifted/talented students to teach them basic skills thoroughly in a variety of interesting ways.

These are the creative gifted students — bane of teachers and parents who do not understand how their minds function. From their giftedness combined with that special, indefinable spark of the unusual and the original may come the greatest discoveries and achievements of the future.

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## **A Trip to Oz: Using the Right Brain in Science Class**

Kent Cochran

---

As we hear the word "scalpel", it pops in the hand of the educator. Rip. Tear. The cranial incision is made. Saw, please! There is an awesome noise as the occipital, parietal, and frontal bones are cut apart. Pass the ingredients: a dash and splash of chemistry, an explosion of nuclear dynamics, a shock and pull of physical science, a phylum and kingdom of biology, anatomy and physiology of health, an earthquake and eruption of geology, a date and inauguration of history, a preposition and noun of grammar, an essay and poem of literature, a fraction and decimal of math. Now for the other ingredients: a pinch of behavior, a drop of morality, and just a tinge of religion. Okay, now to close — "Needle and thread, please."

The operation is complete. Or is it? Just as Oz knew it was impossible to give brains to the scarecrow, so do educators know that it is impossible to pour knowledge into our students.

The objective of this paper is to express the usefulness of developing the right hemisphere of the brain in our classroom. Not every student uses his brain to the maximum, and we as educators should develop both hemispheres in order to develop a more diversified individual. According to McGaugh (2), "Most of the significant innovations have been concerned with the content of education or with procedures for automating traditional teaching methods; few innovations and varied practices have grown out of basic research concerning the nature of learning and memory."

As our society moves closer to the model as described in Alvin Toffler's *Third Wave*, we as educators need to change traditional techniques of teaching and prepare our students to develop and use both sides of the brain. An example of this change in the area of physical science would be to get students to draw their own schemes of electrical pathways. Instead of giving the students electrical plans to label, let's teach them the symbols and let them draw and improve their own ideas as to what they have learned. The Japanese have been using these kinds of ideas for their students for some time.(3)

In biology, the traditional way of having students collect and pin or glue specimens on a page could be revised. Let the students take pictures of these and put together a slide show with music. This would enhance the ability of students to pull from the right brain.

According to research done with rats, a variety of activities must be given to develop the brain fully.(1) Those rats which were not given these activities had lighter cortexes, shrunken brain cells, fewer glia cells, smaller blood vessels, and lower enzymatic activity levels. If this is proven to be the same with humans, then it is our responsibility to give more diversified activities to our students. Students who use the right brain predominately could be given activities to strengthen the left, and vice-versa.

The best way to get an idea such as this beyond the blueprint stage would be:

1. Give each student in your class a test to see which side of the brain they predominately use.(4)
2. As you assign projects, try to individualize to students who need to strengthen one side or the other.
3. Let students prepare and teach units using skits, posters, and ideas of their own.
4. Determine the difficulty of materials and categorize for the left or right side.

The most important idea to remember with this topic is that each student's brain works differently. Some brains are stronger on the right hemisphere than on the left. Traditionally, techniques are geared to the left side of the brain. Let's not criticize or judge students who work predominately with one side only, but instead let's work to enhance both sides.

The following pages contain a few samples of lyrics composed by science students. This is one exercise to help students move up Bloom's Taxonomy and to draw from the right side of the brain.

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## BLOOD TYPE

I prick myself to draw the blood  
Oh! Help it's caused a flood  
What type will it be?  
Who knows, but we will soon see.

The blood pours from my finger;  
The truth will no longer linger.  
I place two drops on the slide.  
Why, oh why, didn't I hide?

Two drops of serum, blood starts to clot  
What blood is this that I've got?  
Martian blood could it be?  
Please, please not me!

The puddle stops growing  
As the blood just now stops flowing.  
Martian blood I now know.  
No, it's just type O.

Lorne Cleveland

## THE PERIODIC CHART

The Periodic Chart is arranged just so;  
It tells you anything about the elements you need to know.

The rows are called periods; the columns are families.  
The elements are at your fingertips, all quite handily.

The series of elements which begins with Actinium,  
All are radioactive, straight through to Lawrencium.

(As you may have noticed, I'm not an expert on liturology,  
But I'm not a poet, and never claimed to be!)

Lynn Woods

## A LOSS OF BLOOD

You said, "Don't worry; it won't hurt much."  
So I decided to grin and bear it.  
I tried so hard not to feel the cold touch  
Of the lancet as it went in.  
Although I jumped, I did not cry;  
I did not shout, yell, or scream.  
It trickled down my hand and onto my arm.  
It seemed I was losing quite a lot of blood,  
But still you said, "That's not enough;  
You have to bleed some more."  
I knew right then I must be tough,  
But my poor finger - it was sore!  
So I bled and bled and bled again  
Until you said I could stop.  
I hoped there was enough blood left within,  
'Cause I felt as if I'd lost every drop.

## MATTER

Matter is something that's everywhere.  
It's a table, a book, a desk, or a chair.  
Matter can be cold or  
Matter can be warm  
Because matter comes  
In so many different forms.  
Some matter you can touch, see, and feel.  
Like sand on the beach or the spokes of a wheel.  
Other types you don't even know it's there  
Like hydrogen, nitrogen, oxygen, and air.  
Matter is a radio, a T.V., or a snail;  
Matter is a car, or even a church bell.  
It's also a door, a shoe, a ring.  
You see, matter is everything.

Shawn Holland

## ROSES ARE RED

Roses are red;  
Violets are blue.  
Put up all equipment  
When you are through.

Roses are red;  
Violets are blue.  
I know a lot about  
The structure of a DNA molecule  
And RNA too!

Roses are red;  
Violets are pink.  
There is no use  
In coming to class  
If you can't think.

Mary had a little lamb  
Its fleece was white as snow.  
I know that to the nucleus  
Is where DNA goes.

Roses are red;  
Violets are blue.  
As sure as some marriages  
Are made in Heaven,  
I know that the chemical  
Formula for disaccharides  
is  $C^{12}H^{22}O^{11}$ .

Roses are red;  
Violets are blue.  
I learned that the  
Chemical formula for  
Carbon dioxide is  $CO^2$ .

Gerald Adams

## CLASS ROOM RULES?

Come in - sit down - be quiet!!  
Alright, Mr. C, alright!!  
Be seated when the bell rings!  
(You immature ding-a-lings),  
And don't come to class without your utensils,  
Especially your notebook, your pen and your pencils!  
Don't disturb anything on my desk without my permission.  
(Don't you idiots ever listen?)  
When a visitor comes in be on your best behavior!  
If not I can always find some good hard labor.  
Do not leave a mess at or around your desk.  
If you do, I won't clean your mess!  
Have your books covered all of the time!  
(Tell me; does this poem really rhyme?)  
Do not bring eggs to class, try me and see.  
I'll throw them at you if you throw them at me!!

Kristi Coats

## BLOOD

Blood is a thing that makes us go.  
You don't need me to tell you so.  
There are arteries, capillaries, and veins  
Where this goes through to keep down the strain.

This is a system that goes on as long as you live  
So this is all that I have to give.

Michelle Horton

## **An Eclectic View of Disciplinary Actions**

Nancy Clark

---

Qualities that were once taught in the home and church are not thought to be the responsibility of the public schools. Two often cited reasons for this change are the increase in divorces and parents spending less time with their children. A third popular reason given is the notion that since World War II values such as respect, honesty, truthfulness, responsibility, discipline, respect for property and human life, and pride in work and ownership have been replaced by materialism, a desire for money and power, status, prestige, and a "me-first" attitude.

Since 1970, ten out of eleven Gallup Polls state poor discipline as the number one problem in American education today.(7) Schools seem to have more truancy, lying, cheating, fighting, vandalism, alcohol and drugs today than prior to World War II.

Given the situation described above, teachers are struggling to develop their own individual approaches for maintaining good student behavior in their classrooms and school buildings. One way to help them in this task is to study the various disciplinary procedures that are available and practiced in the correction of students' misbehavior in today's schools. According to Carl D. Glickman and Charles H. Wolfgang,(5) "teacher-child interaction" regarding discipline in today's public schools can be classified into three categories: the non-interventionist, the interactionalists, and the behaviorists.

The non-interventionist believes the child is goal-oriented, constantly striving to better himself. The teacher's job is not to continuously interact with the child, but to create an environment where the child can freely express his emotions and feelings. For example, Thomas Gordon(6) suggests that if a child's behavior doesn't affect the other students directly, such as daydreaming, the teacher should not use verbal actions such as lecturing or praising, but should use a four-step process that starts with passive listening. Next, the teacher shows she is listening by such gestures as head nodding. The third step is to encourage the child to make an expression of his feelings through such questions as "Do you want to talk more about it?" The last step is when the teacher "mirrors" the child with non-directive statements. For example:

Child: "I don't want to work with Marcia; she is a stuck-up snob."



Teacher: "At times you feel that Marcia doesn't like you."

Through this indirect statement, the child is now able to deal with the reality of the situation and tries to solve it.

The non-interventionist also uses "I" messages as popularized by Gordon.(6) For example, when a teacher states "if you leave your textbooks on the floor, I will trip over them and hurt myself," she is stating the causes, effects, and her feelings about that child's misbehavior. Explaining the consequences of an action may not keep the child from misbehaving, but it will make him hesitate the next time before doing it.

A second disciplinary approach, the interactionalist, stresses interaction with the child in order to reduce or prevent future conflicts. Interactionalists use the teacher's attention and involvement to help the student develop the psychological strength needed to accept responsibility for his behaviors.

One example of interactionism, that of Dr. William Glasser's(4) reality therapy, is built on the belief that since 1950 large numbers of people in industrialized nations have moved from being goal-oriented to being role-oriented. In his book *The Identity Society*, he states that for many students "the struggle for a goal, a profession, a diploma, a home, a family -has been superseded by the struggle to find oneself as a human being." The goal-oriented student's primary approach is power and competition; the role-oriented student's primary approach is involvement and cooperation. The interactionalist uses this desire to assist students in developing the self-discipline needed to achieve their goals.

As described by Bill Rogers,(1) establishing classroom discipline is an eight step process requiring time and patience. The interactionalists are consistent and expect a great deal from the individual. They do not "mirror" the student's feelings, but help the student to "evaluate" those feelings. All school personnel are expected to use these steps when talking with students about all types of problems, fears, and situations, in order to help develop responsibility.

The first step is to be friendly and personal. Showing concern lets the students know that the adult has a special interest in him as a person.

The second step is to stop the irresponsible behavior by asking the student the simple, yet effective question, "What are you doing?" instead of "Why are you doing it?" For example, if two children were in a fight, the teacher should ask both students "what" part each had in the fight, not "why" they were fighting. "Why" questions lead to excuses and placing blame on someone else. Having each student tell how he contributed to the fight helps him become aware of his behavior in the situation.

The third step is to ask the students to evaluate their behavior by asking the question, "Is what you're doing against the rules?" or "Does this behavior agree with our standards?" This helps the students focus on present behaviors, not their feelings. (The non-interventionist would have discussed feelings at this point.) Talking about feelings makes the issue become one of self-involvement. A decision and plan for improvement cannot be successful until the student agrees that the behavior is wrong. Once an agreement is made, then go to the next step.

Step four is to make a plan. Once a mutually agreed upon plan has been developed, the fifth step is to have the student make a promise or agreement to follow the plan. This commitment can be written, verbal, or nonverbal, such as a handshake or a hug.

In step six you follow up by asking the student how the plan is working and reinforce him for doing it. Excuses for not keeping the plan are not acceptable. When a plan is not working the teacher continues to be friendly towards the student. Instead of reacting emotionally with a child or getting angry for not doing what he agreed to do, the teacher waits for an appropriate time and place to talk. A "time-out area" or "quiet area" can be a specific place in the classroom or school to temporarily place a child. When appropriate, repeat steps 2-3-4 until a mutually agreeable plan can be worked out. When the student is able to calmly and quietly talk about his situation, it is the beginning of a trusting teacher-student relationship and the first step towards self-discipline.

Sometimes a teacher must still send an irresponsible student to the office. "Irresponsible" means that the student has continually broken his agreement showing that he doesn't want to correct the problem within the classroom. The office personnel will use the same questioning techniques. These six steps, according to Glasser's reality therapy, might take care of 95% of the discipline problems in schools. Many times the last step isn't necessary and is rarely used because the teacher-student relationship provides a basis of trust and rapport that enables all involved to discuss the problem.

The third approach of the "teacher-child interaction" model is the behaviorist. Conditioning the child or shaping a child's behavior by arranging environmental conditions is what this type of therapist recommends. According to Barry Dollar,(3) the first step to establish discipline is for the teacher to specify the behavior desired of the students. The teacher must let the students know what is expected of them. For example, making a list of "do's" and "don'ts" will let the students know how they are "supposed" to act. The list can consist of rules such as "Don't chew gum in class," and "Don't run in the classroom". The student should be able to define "good" behavior by the teacher's rules.

The second step is to list two categories available to the students. These two categories of reinforcers, concrete and activity, are associated with social reinforcements. For example, if a student voluntarily and habitually reads a book instead of participating in other activities or disrupting the class, then reading a book is a reinforcer for that particular student. A teacher's attention or praise can also make academic behaviors such as reading, writing, or homework rewarding activities.

Thomas R. McDaniel(7) states that in a survey conducted in a public school system in Florida, "they found that 77% of the teacher's interactions with children were negative tone." He also states,

Teachers need to expand their verbal praise list beyond the conventional "good", "yes", and "O.K." responses. They should work at such nonverbal reinforcers as smiles, nods, touch, attention, closeness, gestures, and eye contact.

Expanding verbal praise and communicating non-verbally is one type of disciplinary action

that is used by teachers. However, praise and communication are intangible and may not be effective for some children. Many children need more tangible rewards. According to Dollar, (3)

Child abuse and deprivation studies clearly point to the need for concrete reinforcers (food and shelter), if we wish the child to value other people or to perform behaviors we describe as showing love. Children who are early deprived are often described as "empty", without feeling or emotion.

In other words, concrete rewards or tangible rewards are effective with most children. To an extent, we all demand tangible rewards on some occasions. For example, Christmas and birthdays are occasions which are celebrated with tangible rewards in the form of gifts. The main reason for tangible rewards in the classroom is so they can be taken away later and be replaced by social and activity reinforcers (intangible rewards.)

Thirdly, the teacher must plan when the rewards or reinforcers will be given in order to cause the student to think and act cautiously before he misbehaves. For example, a teacher tells a "disruptive" student that he needs to think about two behaviors: leaving his seat and talking out of turn. For a time period of maybe ten minutes the student is to stay seated and raise his hand when he wishes to talk. If the student breaks this rule, the time period starts again and he must wait another ten minutes before the reward is earned. Increasing the intervals of time from ten minutes each time will result in a longer time period of that student staying seated and of hand raising.

Lee and Marlene Canter(2) believe that positive reinforcement is needed when the child is acting appropriately. If a child can't get the teacher's attention by acting "good", he will try to get the attention by acting "bad". Positive reinforcement should be given immediately after the child responds so that he can have a feeling of success.

After examining these three "teacher-child" interaction approaches, the teacher may prefer an eclectic approach to discipline. In this case, the teacher will realize which aspects of the three models are the best for her to improve a particular problem. For example, making an agreement or plan with the student to handle the problem is important in order to establish a good student-teacher relationship and a trustworthy teacher-child relationship is necessary. One way to achieve this type of relationship is to be involved with each individual in the class and treat each child in a warm, personal, friendly manner or the teacher and pupils might cooperatively establish rules and standards consistent with local, state, and national laws.

Discipline and punishment are two different methods of maintaining discipline. In the Merriam-Webster dictionary *discipline* is defined as "being able to understand the need to obey rules and regulations" and *punishment* is defined as "enforcing certain rules and regulations, arbitrary, democratic or otherwise, with the threat of pain - or pain itself."(8) The key words in the definition of discipline are "to understand the need to obey rules" and the key words in the definition of punishment are "to enforce rules with the threat of pain." When a child chooses to obey, responsibility is assumed and options are kept open

so the child can continue to choose to improve his behavior. Punishment is negative without sustained personal involvement and the punisher assumes responsibility for misbehavior. As Borgers(1) stated:

...General Custer set out to punish the Indians. He has a good method for punishing a few Indians, but it didn't work too well with 2000 of them. The students outnumber us, so it may be time for a pow-wow. A treaty or a system needs to be developed to put the principles of reality therapy into action.

Thus, it appears that physical punishment should be used only in extreme cases and the reality therapy process should be the basis for developing responsible behaviors.

Basically, the methods suggested here are those of interactionalist model. But the use of the "I" messages of the non-interventionist and positive reinforcement of the behaviorist are also important for the child's emotions and feelings of success. Each teacher must develop his eclectic methods because each teacher's classes and situations are different. The teacher interested in developing a positive approach to discipline problems in the classroom will find the authors mentioned below helpful.

#### NON-INTERVENTIONISTS

V. M. Axline  
Thomas Gordon  
C. Moustakas  
C. Rogers

#### INTERACTIONALISTS

E. Berne  
R. Dreikus and P. Cassel  
W. Glasser  
T. A. Harris

#### BEHAVIORISTS

S. Axelrod  
G. Blackham and A. Silberman  
Lee and Marlene Canter  
J. Dobson  
B. Dollar  
Siegfried and Therese Englemann  
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## Confessions of a Substitute Teacher

Betty Harrison

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When one considers the problems involved in substitute teaching, many thoughts come to mind. The pay is often not adequate to attract well-qualified persons. The substitute rarely knows students' names on the first visit in the classroom. The substitute often is not trained in the variety of subjects he or she is called upon to teach. All of these truths are realities that one may or may not be able to change.

There is, however, one feature of substitute teaching that can be changed. It is the attitude that the substitute teacher is just at the school to babysit for the day. This attitude, unfortunately, may be shared by both students and substitutes. What results is the often discussed power-play between the substitute and students concerning who is in control.

My reason for becoming a substitute teacher was largely a selfish one in that it would provide a way for me to remain involved in my profession on a part-time basis until my son reached toddler age. However, I discovered from my experiences of substitute teaching in a variety of classrooms at various grade levels that what began as a way to meet my needs became another way of helping to meet students' needs. I emerged from these experiences with insights and knowledge as well as with a feeling that perhaps students had also profited from my work. As I pondered my days in the classroom as a substitute teacher, I felt that there were insights gained that would be worthy of sharing with others for the purpose of continuing the educational dialogue of making all educational experiences, even the visit of a substitute, more beneficial to students.

Throughout the months I substituted, I was called to teach in various classrooms and subject areas from Spanish, math, English, and speech, to all subjects in second grade. While my experiences in the classrooms were positive ones, toward the end of my substitute teaching semester, an experience occurred that challenged my teaching skills and consequently caused me to consider what attitudes and skills can aid a substitute teacher.

I was asked to substitute for a few weeks before Christmas for an eighth grade reading class. When I arrived that first morning, students repeatedly asked, "Are you our teacher?" I answered automatically twice before realizing they were asking more than was I the teacher for the day. Upon talking to the students a few minutes, I discovered that

their original teacher had resigned while on sick leave and that a substitute teacher had been with them the last two weeks. I was, in fact, the substitute for the substitute.

The first day students were quiet, in anticipation that I was their new teacher. By the second day, however, sixth period students, who had previously told me that they had made the last substitute cry, seemed to have decided that if I was not their permanent teacher then they really had no use for me either. Plans that worked well with two other classes on the same level seemed much less than ideal for this group. Though I stated that I had but one rule for the class (when I or someone else was talking to the class, I expected them to listen), the one rule had to be repeated several times. I resolved that day that this group would need special attention and thought. Though students had said that about half the class received "licks" for being rude to the former substitute, I did not feel this was my answer. Neither did I feel the solution resided solely in improving the day's lesson.

I had begun the lesson by explaining why their reading text included a story about the migratory and mating patterns of seagulls. I had told them that the story was in the text not so they could learn all there is to know about the gulls of Smuttyville Island, but as an example of a chapter from a science text. The purpose of the day's lesson was to discuss reading study skills that could aid them in reading informational chapters in their textbooks in other classes. We then proceeded with what I thought was a well-planned informational lesson, but discipline was not well-established. Repeatedly, I had to ask, "Now what is my one rule?" Several would answer, "When someone's talking to the class, we listen." The class was under control, but only like a wild horse being held tightly by the reins.

I felt the lesson was well-planned, yet something was still wrong. I had tried allowing some time in the class period to have the students tell one thing about themselves to help me in learning their names, a technique that is sometimes effective in substitute classrooms, but while the students were eager to tell about themselves, they didn't care to listen to what others had to say. After two rows, this plan had to be abandoned to a later date.

That day as I left the school, the following thoughts were running through my mind, "Though I have the best-planned lesson and have not discipline, I am like a resounding gong or a clanging cymbal. And though I use all manner of visuals and plan for great discussion, if I have not discipline, I accomplish nothing." The next day sixth period was a short class session because of an assembly. I briefly reviewed students for their test, pausing when necessary and reminding them of my one rule, then administered the tests. Shortly after students finished, the bell rang and students departed, still with no apparent displeasure at leaving this classroom.

As I thought about sixth period that night, I thought of the composition of the class and of my own high school experiences. I could relate the composition of this class to a similar one of which I had been a member in high school. In that situation the teacher could have modified his presentation and could have gained control; yet, he didn't. He allowed students to drive him from teaching after just one year. I thought about my experiences in teaching and planning and realized that, yes, I could find something that would work with

sixth period. Later I would realize that this resolve, rather than any one technique, was probably the key to my success in substitute teaching.

I decided that in establishing discipline so that we could have meaningful class-time, I needed to look at room arrangement first. Before leaving, the teacher had made a partially completed seating chart for this large class that filled every chair and seats at tables around the corner of the room. I planned to move one table to the middle of the room for the overhead projector and planned transparencies for use on the overhead as an aid in giving directions, posing questions, showing illustrations, etc. The other two tables were moved to the back of the room, with seats assigned so that no student would have his or her back to the front of the room. I was structuring the environment as one step to aid in keeping students' attention on task and to help me in learning student names more quickly than I had.

Next, I decided that a skit would probably be an effective and humorous way to gain students' attention. I decided immediately following roll call to have five students read the following skit.

1st Reader: Yuk, here we go into reading class.

2nd Reader: This is the dumbest class I have ever been in. Who wants to read all those old stories anyway?

3rd Reader: And who cares about the old, stupid gulls on Smuttyville Isle?

4th Reader: The substitute said that the story itself wasn't so important. She said it's in our book as an example of how to develop study skills.

5th Reader: Well, frankly, I've never heard of SQ3R. I think she made that part up.

1st Reader: When is our teacher coming? I don't like substitutes.

4th Reader: Well, my mom said we'd better try to learn while the subs here. Otherwise, we're the ones who lose. After all, we're here to learn.

5th Reader: Oh well, maybe you're right. But I still don't get that SQ3R.

1st Reader: What are we going to do this week?

3rd Reader: Hey, get quiet, here comes the old sub. Let's give her a chance and hear what we're going to do today.

After finalizing the skit and firming up the seating chart and room arrangement, I sat



down to grade the tests. As I graded the papers, I became angry that students had not done well. The test was essentially a repeat of a test the last substitute had given since first scores had been so low. It was a chance for the students to improve their scores, after additional discussion of the information. I had heard most of the students read some of the text material aloud as we read passages that supported our discussion, and all could read the text. I didn't feel the scores could be explained by saying that the text was too hard for them. I resolved that, in addition to presenting the skit at the beginning of sixth period and correcting the seating chart, that I would make an announcement concerning test papers. After test papers were passed out, I said, "As long as I remain as your substitute teacher, I'll be collecting your graded work after we've discussed it. Students whose work does not improve will be asked to get their papers signed, and parent conferences will be called." I then proceeded to teach the day's lesson. Miraculously, the resulting class session and the ones thereafter went very well. Students were involved, attentive and working. They became the good class that I knew they could be.

I wondered later what had worked. Had it been the change in room arrangement, the skit, the consultations with fellow teachers, the prospect of parent conferences, the lessons, or an occasional principal visit? I decided that, foremost, what had made the difference was that by all these efforts, students realized that I had not come to babysit. I was there as their teacher, at least until the "real" teacher arrived. I think they decided that, indeed, school was going to proceed as usual, even with a substitute and that what they did in class mattered.

As I think of this and other experiences in substitute teaching, I feel that perhaps I gained some insights that are worthy of sharing with others. What had begun as a way to meet my needs had turned into a way of helping to meet students' needs. I had been successful in substitute teaching in a variety of classrooms at various grade levels primarily because, like all good teachers, I cared about the students. I cared that what we did the days I was in the class would meet the teacher's objectives and the students' needs.

Overall, I did not go into any classroom feeling that my hands were tied. For example, if it was listed on a teacher's plan, "Show a film.", I did what any self-respecting teacher would do. I introduced the film, involved students in discussion, piqued their interest in the film, showed it, and followed up with discussion. Or, if the teacher had said on the lesson plans, "Have students read silently and complete a worksheet.", I realized the problem a substitute faces when many students simply decide not to do the work (especially if students are reading below grade level), so I structured the class session. I first introduced the reading, asked students to read the first five pages silently, then raise their hand as they were ready for the worksheet. After all received the worksheet, I walked around the room and assisted those who needed help. If some students wanted to disrupt the class, I merely said, "I am capable of standing at the front of the room as a policeman if I need to, but I'd rather walk around and help those needing help." Since several did indeed need help, the talking subsided.

In short, I feel I was successful in the classroom because I structured the class time so that I rarely was babysitting or conducting a study hall. I fulfilled the directives of the

teachers' plans, but I felt free to supplement the plans as time allowed and to bring my own personality into the classroom. Having recently worked primarily in secondary education, I recognized that some of my secondary techniques of utilization of time and the use of positive reinforcement were equally effective in the elementary school. On the other hand, I realized again that there are special needs of the elementary child in relation to classroom management. In recognizing and helping to meet these needs I found the book *Elementary Teacher's Discipline Desk Book*(1) most interesting and helpful.

In essence, on the basis of my experiences if I had advice to administrators offering suggestions to substitute teachers I would say, "Feel free to teach when you come to our school this day. Use the teacher's plans as your guide, but feel free to supplement as you see fit. Bring a positive outlook into the classroom and let me know if you have problems. We're here as a team to help, but primarily remember we've called you today to be the teacher - to teach the lessons, to strive to meet individual needs, in short, to do all the things we hope our best teachers do." And, in parting, I'd say, "We won't pay you well for doing this, but I've heard from a most reliable source that you will indeed feel the intrinsic rewards that are teaching."

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## **Outdoor Education: New Directions for the Eighties**

Milton Payne

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There is an exciting and highly effective method of instruction rapidly spreading among the schools of the nation. It is happening without monies from traditional state and national sources. No national curriculum committee reports or recommendations have been involved. Administrators and school boards have not established new teaching positions or initiated bond elections. The change is the growth of outdoor education as a component of the school curriculum.

The concept of outdoor education is not new. The roots of today's new awakening to the educational potential of the outdoors can be traced to the 1920's. The revolution is in the phenomenal growth and the diversity of the application of the concept. For example, in 1960 only a handful of schools in Texas had any publicly identified outdoor education program. In contrast, recent surveys of Texas schools conducted by the Texas Education Agency and several other agencies indicate that over 1,937 individual schools in the state are using a wide variety of outdoor learning areas and programs. A review of professional journals reveals an abundance of literature dealing with outdoor education. Books and articles on outdoor education published since 1960 far exceed all quantities of similar publications dating from 1960 back to 1920.

As outdoor education has emerged as a viable alternative to traditional methods of instruction, problems have also arisen which can severely limit continued growth and effectiveness of the concept. Foremost among these problems is a lack of agreement among its proponents as to the meaning and purpose of outdoor education. There is little common purpose among the several professional groups which are presently advocating outdoor teaching. Science teachers have one philosophy. Physical education teachers have another. Teachers of specifically identified "outdoor education" classes have a different perspective. Teachers in the "resident" outdoor education centers view the concept in their own way. Many other teachers have not considered outdoor education as a teaching tool.

In the history of education there have been many good ideas which have emerged into the educational spotlight and then disappeared. This need not be true of outdoor education. Whether it is true or not is going to depend upon how outdoor teaching is perceived

by the teaching profession as a whole not just by factions within the profession. A short historical sketch will help establish a background upon which solutions to the problems facing outdoor teaching may be offered.

During the 1920's industrial and technological developments were revolutionizing society. Families were moving in greater and greater numbers from the farms to the cities. Schools began to fulfill a more important role in society as education came to be viewed as the road to economic and social success. As this new way of life developed, people were concerned that they were leaving something behind that was good -- too good to be lost. It was in these years that the foundations for outdoor education were laid. Schools developed two components of the curriculum designed to preserve and insure the continuance of an appreciation of the world outside the city: school camping and nature study.

Camping as a component of the physical education curriculum was an accepted part of many school programs in the 1920's, 30's and early 40's. Likewise, the nature study movement was a popular part of most science courses. During the years of World War II, however, the school camping and nature study curriculums disappeared from most educational programs.

The 1960's brought with them a re-emergence of some of the same needs which existed in the 1920's. Society realized that the "good life" was not so much dependent upon industry, science, and technology as it was upon the farms, the forests, the air, and the oceans of the world. Words like pollution, ecology, environment, and energy brought with them new and different demands upon civilization. This in turn led to the development of school curriculums in environmental and ecological studies.

During this time, society was faced with massive social unrest, problems associated with an unpopular war, economic depression and many other conditions which created an atmosphere of stress and frustration. These conditions contributed to an exodus from cities to outdoor recreational areas. Use of state and national parks increased to capacity and beyond. Hunting, fishing, boating, and camping became more popular as families sought opportunities to relax and refresh themselves. The schools responded to these circumstances by expanding educational opportunities in lifetime sports and outdoor recreational activities.

Thus the outdoor education curriculum of the 1920's reappeared in the 1960's but with a much broader scope. Outdoor education in the 1960's and 70's grew rapidly, but it grew and developed in two directions. It was an area claimed by science educators and likewise by physical educators. This posed no real problem in the 1960's when it was all right for outdoor education to mean different things to different people. The 1960's were a time of growth and change. The schools were imbued with a spirit of experimentation and federal money.

The 1980's are different. The demands on the school have changed. A marked conservatism envelopes educational institutions. Money is scarce. Fragmented and lacking a common conceptualization, outdoor education may lose its tenuous touch on a great potential.

What is that potential? The great potential of outdoor education is not solely in science education nor in physical education. These two areas can and will continue to grow and

probably continue to provide leadership in the outdoor education field in the foreseeable future. The future and potential of outdoor education is in the teaching of the basic skills such as reading, writing, and arithmetic. It is in outdoor education becoming not a subject or content area within itself, but a method of teaching, useable in all curriculum area from art to zoology. The lecture is an instructional tool; so likewise is the computer, the movie projector, the magic circle, the learning center, and the chalk board. Outdoor education is also a teaching tool. Its use and effectiveness is dependent on the same factors as are the previously mentioned means of instruction.

What is outdoor education? How can we define it? An operational definition which is both simple and inclusive is "Outdoor education is the use of outdoor environments, resources, and activities for educational purposes." Outdoor education is no more science than it is reading. It is not something which a teacher of any subject would use to the exclusion of classroom strategies. It is a strategy which can, however, in most subjects, be the most effective means of teaching certain concepts and skills. Students who are having difficulty with the more abstract in-the-classroom activities often are successful learners in the highly motivational, real world just outside the classroom door.

Why is there a need for outdoor education? There are specific content needs for outdoor education such as were discussed in relation to the science curriculum and the physical education curriculum. However, the underlying principle behind outdoor education transcends any subject matter consideration. The basic philosophy of outdoor education is set forth in a quotation credited to Comenius, a sixteenth century philosopher:

As far as possible men are to be taught to become wise, not by books, but by the heavens, the earth, oaks and beeches, that is, they must learn to know and examine things themselves and not the testimony and observations of others about the things.

The need for outdoor education is the need to have boys and girls learn to know and examine things themselves; not to be told about, not to read about, but to do. In physical education, outdoor teaching will often be the primary method of instruction. Canoeing, fishing, the shooting sports, hiking and backpacking, rock climbing, camping, and other such recreational activities necessitate out-of-classroom instruction. Likewise the science teacher who uses outdoor resources and activities to teach cloud formations, weather forecasting, plant identification, soil formation, erosion control, and a multitude of other such topics is using the most effective method of instruction available to him.

The math teacher has numerous opportunities to move from the chalk board to the school ground for instructional activities. Practically all measurement activities and solutions to many formulas can be done effectively with hands-on, highly motivational outdoor activities: tree height may be calculated, the number of board feet of lumber in a given tree estimated, quadrature studies conducted, percentages calculated, the size of an acre determined, and angles measured.

Reading, social studies, art, music, and other subjects involve skills and concepts which

can effectively be taught with outdoor experiences. Teachers need to be aware of the opportunities for outdoor instruction. In these days of low test scores, poor motivation, discipline problems, and other such concerns, planned and meaningful outdoor instruction offers the teacher a unique opportunity to increase the enjoyment and effectiveness of teaching. Outdoor education is a means of introducing, enriching, and extending the curriculum of the school. As such it has a great potential for making school a more meaningful and interesting place for the boys and girls we send there to receive an education.

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## **Blocking Preconceived English-Word Meanings of the Basic Science Processes**

Wendall Spreadbury

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One of the historic cornerstones of science has been the efficient and concise use of words generated from the dead languages of Latin and Greek.(1) For many years the practice of using such words has greatly aided clear communication among scientists and the scientifically literate.(2) Words which are no longer spoken (dead-language words) never change while those words which are commonly used in everyday language continue to take on new meanings. The originally concise word is eventually adulterated in meaning and assumes so many different meanings that it becomes quite useless as a tool of communication unless great effort is taken to note the pre- and post-parts of the sentence or context in which the word lies. The word *run* is a good example of a word having many meanings. According to Webster's Collegiate dictionary, the word *run* has fifty-three different meanings.(3) A word with multiple meanings holds a tenuous position in science or in science education — especially when it is used as a tool by which specific concepts are conveyed.

Relative to *Science...A Process Approach Commentary for Teachers*, fairly common words were used to name the science processes and those science processes were painstakingly and clearly defined operationally.(4) Yet, during the training of elementary teachers in the use of the processes, difficulties appear which can be traced back to the meaning of the process. Apparently one barrier in the learning of the science processes is that the teacher has preconceived meanings of the words "observing", "measuring", "communicating" and so on through all of the science processes. This is not an unreasonable or illogical situation in that the majority of adults in our society have been using these words in one context or another since childhood. Suddenly these familiar words are designated as precise science processes. Unfortunately, preconception of those words confuses rather than aids the open-minded learner. On the other hand, the closed-minded or dogmatic-type individual usually rejects the new meanings given to these old words which for him have pre-existing specific definitions.

The process word "observing" is precisely defined operationally through carefully stated behavioral objectives in *Science...A Process Approach Commentary for Teachers*. Yet, the teacher may not have learned the new word meaning. At first glance the situation appears to be that the teacher simply did not study. But most teachers, previous to special

training, consider observing to be the use of only the sense of sight rather than a simple reporting of perception from as many senses as possible. Some teachers confuse "observing" with "inferring" while other teachers employ the "Sherlock Holmes" meaning of observation which in reality is a deductive reasoning procedure.

If a new, never-before-seen-or-heard word could be introduced to label the simple reporting of physical senses, then there would not exist in the teacher's mind a series of previously accumulated connotations. Without previously accumulated connotations, the new word would probably be influenced only by the training environment at the time of introduction. For example in the case of "observing", a Latin root word would be used and the new word SENTIPERCEPTISING could be introduced. Simultaneous with the introduction of the new word SENTIPERCEPTISING the meaning of each root and reasons for the suffix could be explained. SENTI refers to the senses, such as vision, auditory, olfactory, tactile, taste, kinesthetic, etc. PERCEPT refers to the introduction and resulting reporting of the senses to the mind. The "i-s" makes the word pronounceable in the English language. Finally, the gerund ending "ing" denotes action on the part of the learner or a doing situation. If a SENTIPERCEPTISING activity takes place, then the senses of the learner will be brought into play, and any deductive or inductive reasoning will not.

"Measuring" has basically the same preconception problem as that of "observing". Rote memorization of measurement units and certain manipulations and calculations seldom leave the teacher with the basic concept of comparison that is the essential theme of all measurement systems. Introduction of the word COMPTRASTING before or during the first measuring activity might clarify the process. COMP originates from the word compare and TRAST is found in the word contrast. The word COMPTRASTING is more a coined or contracted word than a pure conjured root word formation.

MORPHITEMPORISING is a total root formation word. MORPH means shape and TEMPOR refers to time. The process of Using Space/Time Relationships is really more the process of working with shapes and shape peculiarities such as symmetry, than working with space. The time portion of the process name is appropriate relative to its operational definition. Since the first two syllables of MORPHITEMPORISING are Greek and the next two are Latin this word is a hybrid.

The process "predicting" is forecasting. EXTRAPOLATING is precisely what must be done to forecast statistically. EXTRA means beyond and POL refers to poles or points on a graph. EXTRAPOLATING is going beyond known points. Interpolating might also be used in predicting, but the word EXTRAPOLATING seems to transmit the statistical prediction connotation to the teacher. The use of the word EXTRAPOLATING is likely to be so limited in everyday language that the majority of teachers would not harbor conflicting definitions.

ENUMERATING is an appropriate name for the process of "Using Numbers".

FERISENTIPERCEPTISING, admittedly a mouthful to pronounce, is appropriately long and large for the task of denoting the most sophisticated of the basic processes, "Inferring". FERI refers to bearing or carrying out and the rest of the word is the previously recommended process name for the reporting of the senses ("observing"). The theme is to extend "observing" to a statement of explanation, cause and effect, assumption and



modus operandi, based on the reporting of the senses. FERISENTIPERCEPTISING contains the word and the meaning of SENTIPERCEPTISING.

FERIGRAPHISING is the replacement word for "communicating". FERIGRAPHISING means "bearing of graphs". GRAPH refers to writing. The use of graphs is a sophisticated method of communicating in science.

MUTUEXCLUSIVISING is borrowed directly from the predominate and peculiar property of mutual-exclusivity that is so essential to the science process of "classifying". MUTU refers to sharing while EXCLUSIV refers to differentiation. Mutual exclusivity is a paradoxical term but it clearly denotes scientific classification in that it reminds the learner that grouping should be based upon a property shared by about one half of the entire population. An intentionally produced arrangement of one group of objects containing the color red and one other different group not containing the color red is the result of MUTUEXCLUSIVISING.

The procedure of producing the science process names free of preconceived connotations can be didactically enhanced by a conscious effort on the part of science educators to use and emphasize word root labels in taxonomic pursuits as well as process activities of science in the classroom. In other words, develop scientific vocabulary by the word root method. A complete set of conjured labels for the basic processes is: SENTIPERCEPTISING (Observing), COMPTRASTING (Measuring), MORPHITEMPORISING (Using Space/Time Relationships), EXTRAPOLATING (Predicting), ENUMERATING (Using Numbers), FERISENTIPERCEPTISING (Inferring), FERIGRAPHISING (Communicating), and MUTUEXCLUSIVISING (Classifying).

Although some efforts have been made to explain and define alternative names for the science processes, the words in themselves are by no means sacred, nor is any advocacy made for science educators to use the aforementioned words. However, the science educator might desire to avoid science-process-word-meaning confusion by using words that disallow preconceived meanings to be present yet are meaningful to him and his students.

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## Positive Approaches to Student Discipline

Michael J. Fitsko

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Recent surveys, including the prestigious Gallup Poll, show that Americans think school discipline is the most serious problem facing public schools today. Obvious increased professional and public concern over school discipline has been thrust upon the education scene in several different ways during recent years. Teachers complain of having to be "policemen" and administrators are increasingly trying to get someone else to take over the ever-burdening role of dealing with school discipline.

Very little research has been conducted in the area of school discipline, although persons in all segments of society can and will offer suggestions as to how to effectively deal with it. It has been suggested that students today are more dishonest, disrespectful, and disobedient than they were several years ago and often educational administrators are so bogged-down with school discipline, nothing or little else is accomplished.

This article attempts to look at ways the school administrator may deal with discipline positively, constructively, and consistently. Hopefully, some of these ideas are being practiced in some schools and being considered in many others.

For those of us who have been in education long enough, an experiment conducted by some Harvard psychologists or "rat men," as rodent researchers are known, will probably not be new.<sup>(1)</sup> Basically, these researchers took a litter of rats from the same group of mothers, mixed them up, and divided them into three equal groups. Each group was given to a research team with a series of tasks that were to be achieved by the rats. The tasks, of course, were the same for each of the three groups.

The first research team was told that they were working with super-rats. They believed their rats had been bred into the genius category and that they could expect great things from these savant rodents. The second group of researchers was merely told they had a group of rats to run through a series of experiments. The third group was told that they were experimenting with idiot rats, morons from a long line of deficient rodents and they would be lucky to get these rats to put one foot in front of the another.

When the three research teams reported their findings, the psychologists were so amazed that they repeated the same experiment several times, with different rats and teams and still produced the same results. That is, the rats classified as superior out-performed

the so-called average rats to a large extent and totally eclipsed the performance of the so-called idiot rats.

Since these three groups of rats came from the same parents and were given the same tasks to achieve, the only way the psychologists could explain the outcome was to hypothesize that, in some fashion, the research teams had been able to communicate their expectations, or lack of expectations, to the rats.

What, the reader may ponder, has all of this to do with school discipline and student misbehavior? Well, if rats, who cannot communicate via human language, still can react in significant fashion to how they are perceived by researchers, then how much more impact are actions going to have on students who not only sense how we feel about them but also receive verbal stimuli? In short, both rats and people tend to behave according to how they think others see them. If the administrator's actions toward a student indicate hostility, repugnance, disrespect, and mistrust, that student will probably react in negative ways. If those actions, however, indicate respect, affection, admiration, and trust, the student will probably respond in positive ways.

Before continuing, an explanation of what is meant by school discipline problems and student misbehavior is appropriate. These terms are used to describe any student behavior occurring during the regular school day "that violates a written rule or unwritten convention. Such behavior may include truancy, class cutting, aggressive or criminal actions, classroom disruption, and disrespectful conduct toward teachers" (2) in short, antisocial behavior. Academic problems such as poor performance in a course or lack of interest in a class are not included unless there is a direct contribution towards disobedience, which is often the case.

The following factors have been identified as contributing to misbehavior in school:

1. Inconsistent enforcement of school rules by teachers and administrators.
2. Inconsistently applied consequences for breaking school rules.
3. Failure of school personnel to make students aware of rules.
4. Failure of school personnel to deal with misbehavior in a prompt and individualized way.
5. Failure of school personnel to confront minor problems early, before they become major ones.
6. The failure of school personnel to involve parents in the resolution of discipline problems.(2)

To deal effectively with these problems, many persons in educational administration have proposed various approaches and guidelines in an effort to deal quickly, effectively, and positively with school discipline. One approach in dealing with misbehavior is Daniel Duke's Systematic Management Plan for School Discipline.(2) This is basically a set of guidelines intended to provide a more constructive and comprehensive approach to the problem of in-school disciplining.

The most important component to positive discipline is collecting accurate data about

discipline for each and every student involved in a disciplinary problem. The administrator must keep an accurate and up-to-date record on student discipline problems which may then be analyzed and reported. It does little good to wait until the end of the year to make an annual report on student misbehavior. Possession of accurate data permits school personnel to attack the problems in a direct, informed manner and may provide a detailed pattern of behavior on a particular student. In addition, systematically collected data is a powerful antidote to the kind of rumors and gossip about student misbehavior that boards of education and communities often exchange and that can so adversely affect a school's morale.

A second aspect of positive discipline comes when the administrator takes the offensive in dealing with student misbehavior problems and views "troublemakers" as "children who need help." In this view a positive attitude can be created within the staff and student body, and proper counseling, guidance and appropriate referrals can be achieved. It is a function of the school leader to accept, identify, and aid those students whose learning capabilities are impaired or distorted, just as those students who misbehave are revealing symptoms which also should be recognized. It is important to emphasize here that this is not meant to eliminate discipline, punishment, or avoid leadership responsibility, but instead move towards quick corrective and preventive action. Often the vast majority of discipline problems involve the same students, and continued severity of punishment does not seem to be the answer. "The roots of problematic behavior are likely to be well concealed and the defenses so well established, so that until a relationship built on trust and sincere concern exists, progress will be slow or non-existent."<sup>(5)</sup> Continued defining of students with behavior problems as troublemakers will continue the process of negativism and cause the non-desirable behavior to continue.

A third aspect of the positive approach to student discipline is one suggested by Richard Gorton, Professor in Educational Administration at the University of Wisconsin.<sup>(4)</sup> He points out that progress can often be made in improving school discipline by changing the nature of the school itself. It is possible for the administrator to narrow or broaden the scope of discipline problems by merely looking closely at what constitutes a "problem."

For example, some schools consider it a discipline problem if a student is in a specified area of school without a permit or pass from a teacher or the office. Thus, to go to the restroom or anywhere else in the building requires some special permission and a student found in the halls or other areas without a pass is, by definition, a discipline problem. As Mr. Gorton points out, it is not the student's misbehavior in the hall that has precipitated the problem, but his mere physical presence which has defined him as a discipline problem.

Consequently, the administrator may narrow or broaden his concern with student discipline by defining within the school what kind of behavior constitutes a discipline problem. Given enough restrictions and narrowing "freedom of movement" for students within the school will surely convince both staff and community that the majority of students misbehave. Thus, the "importance of defining and securing agreement within the school on what kind of behavior represents a discipline problem cannot be over-empha-

sized.”(4)

In acquiring and formulating a philosophy of positive discipline, it is vital that teachers and especially administrators be prepared to “change with the times” and changing conditions. Discipline of any kind, like other realms of school life, is a changing phenomenon subject to rapidly changing life styles and conditions. A positive discipline plan includes policy evaluation and policy formulation. Students, staff and community should suggest changes and participate in school discipline policy formulation. Administrators must ignore the trap of “because that’s the way we’ve always done it” and open their minds to new ideas and alternatives to negative and coercive practices which do not teach children anything about the proper ways of behaving.

Research seems to indicate that the principal must take the lead in promoting a positive discipline format, although the total faculty and staff must be involved in the development of the program. Of course to do this the principal must be aware of some specific practices that are helpful in developing social behavior patterns.

As reported by Richard Groton,(4) Lawrence E. Vredevoe in his “Third Report on a Study of Students and School Discipline in the United States and Other Countries,” indicated that successful schools with good teacher-student relationships and decreased amounts of student anti-social behavior do not depend on size, location or composition of the student body. Vredevoe reports the schools selected as representative of the best citizenship and teacher-student relationships had positive, specific and common practices. Among these were:

1. An understanding and apparent recognition of the purposes and values of the standards and rules in force by faculty and students.
2. An emphasis on self-discipline by both students and teachers.
3. All standards and rules were subject to review and change, however, they were consistently enforced until changed via due process.
4. Emphasis in treatment of all discipline cases was on the individual involved and not the act.
5. Good citizenship and conduct were characteristic of the faculty as well as the student body. Courtesy, consideration, respect, professional dress and manner, as well as proper speech were practiced by faculty members.

Thus, returning to the Harvard rat experiment for a moment, the reader will recall that the conclusion of the psychologists was that the rats tended to have their behavior modified by how they were perceived by humans. Those rats perceived as brilliant achieved in a manner radically different than the rats thought to be idiots. Using the same line of reasoning, how would students tend to behave if they felt their adult superiors looked on them as honorable, dignified, trustworthy, cherished, and admired? How would they, by the same token, behave if they felt the adults in school looked on them as evil, not trustworthy, devoid of reasoning power, unpleasant, unliked, and merely tolerated? Therefore, the implication for administrators is a clear one — create school environments

for students which allow them to flourish and grow, which honor and respect them. School personnel must believe and respect the philosophy that the majority of the students will voluntarily do the right thing rather than the wrong thing if given the option of making a choice. Administrators must not permit the schools to become stifled by unnecessary, trivial and stupid rules which basically do little more than promote mistrust and negativism on the part of students and staff.

## Conclusion

This article has presented a rationale for effectively dealing with and confronting discipline problems in a comprehensive way. It is clear that efforts will be successful only with a concerted response by administrators, teachers, students, parents, and community resource persons to determine the exact nature of school behavior problems, identify their causes, and confront them firmly and openly. A successful school leader is one who works to end non-commitment, dependency, alienation, irresponsibility, and who feels that the potential for responsible and self-directed behavior is within all students and encourages these qualities to mature.

Positive discipline, then, can be achieved by letting our actions say to students, "O.K., you've broken some rules with your eyes open, here's what it will cost you, but when you've paid the price the slate is clean and we still like you." This is positive and effective disciplining — letting students know that they are liked and respected; that they are worthy individuals who can be trusted; that there are reasonable limits to what they can and cannot do. For it is as William Herd Kilpatrick has said, "We learn what we live; we learn each response as we accept it for our living purposes; we earn it to the degree that we live it; and what we learn therein build at once into character."

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## **On Returning to the Trenches**

Thomas D. Franks

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Should college professors who teach courses which are required for teacher certification return periodically to public school classrooms and assume some responsibility for teaching? If one of the requirements in the proposed revision of teacher education standards in Texas, currently being developed, remains as it is, the answer to this question definitely will be affirmative.

The requirement formalizes a notion that has been held by public school teachers and administrators for a long time. The notion is that, over time, college professors of education lose touch with the reality of what is going on in the public school classrooms. Consequently, the content of teacher preparation courses becomes less relevant and the credibility of what the professors say becomes more questionable.

The appearance, in the proposed revision of teacher education standards, of a requirement that college professors "return to the trenches" to prove they can practice what they teach was no surprise to anyone who attended one or more of the statewide hearings on teacher education standards conducted by members of the Commission on Standards for the Teaching Profession during the past two years. The requirement was advocated repeatedly by speakers representing themselves or some particular interest group. Some advocates were professors representing teaching fields from the arts and sciences. Other advocates were professors and deans of education. However, the most eager promoters of the idea of getting the professors "back to the trenches" were public school personnel.

Following one of the hearings held on the Stephen F. Austin Campus, I challenged my colleagues in the Department of Elementary Education to volunteer for a day of substitute teaching in a local elementary school. The result of that challenge was that within a few days, four of us were making arrangements to teach children in the first, second, third, and fifth grades at Carpenter Elementary School in Nacogdoches while their regular teachers visited an elementary school in Longview.

On the afternoon preceding our day to teach, we met with the Carpenter School principal, Mr. Clois Walker, and the four teachers whose classes we were to teach. The teachers seemed relaxed, somewhat amused, and genuinely impressed that we had agreed to do what they had always thought education professors should do. We were anx-

ious, but proud to be so courageous!

We got to school early enough the next day to give each other moral support and to review our lesson plans for the day. During the day we had some opportunities to give each other supportive nods and smiles, but most of the time we were very busy. At the end of the day we compared notes and discovered that the most serious problems encountered were short-lived tears from a first grader and the injured lip of a third grader. So we declared the day a success!

What did we learn from the experience? Would we recommend it for others? Would we do it again? What would we do differently next time?

Dr. Mary H. Appleberry, veteran of 22 years as an elementary teacher and 11 years as a teacher educator, had this to say about her day in Mrs. Sitton's Third Grade:

"First, I had learned that kids are as delightful, lively, and as much fun as ever. Second, I felt more confident of my own ability to *do* as well as to advise others how to teach. Third, hopefully we improved public school-university relationships by demonstrating that we really can apply our know-how and experience in the "real world". Best of all, I discovered that I hadn't forgotten how to teach, and I still loved it. Maybe my timing wasn't quite as smooth and automatic as when I worked with a class every day, but the feeling of rapport and interaction, the excitement and joy of learning together are still there. Would I be a 'teacher for the day' again? Yes, indeed!"

Dr. Mary Ella Lowe, veteran of 6 years as a college teacher preceded by 7 years as a public school teacher and administrator, offered this assessment after her day in Mrs. Kennemer's Second Grade:

"My day of teaching in the public schools was a very worthwhile experience. It served as a reminder, first of all, of the tremendous responsibility public school teachers assume every day.

"Secondly, although much of my time is spent in the public schools supervising student teachers and I have always felt confident I could quickly step into the role of "teacher," I realize more than ever now, the great difference in "watching" someone teach and actually doing it yourself. How quickly we forget!

"Finally, it was satisfying to know that children are *still* children - that they are full of energy, challenging and unpredictable.

"I definitely believe that everyone in teacher education should have a similar experience from time to time to keep us current and relevant so that we never lose sight of the "real" world of teaching. I, personally, am looking forward to my next opportunity to teach real, live children."

Dr. Kay Rayborn, veteran of 6 years of college teaching and 4 years in Mississippi public schools, offered these comments concerning her day in Mrs. Rowe's First Grade:



"I think one of the most valuable outcomes of this experience is the credibility/public relations aspect. Some classroom teachers feel (perhaps justifiably so) that university professors have forgotten the real world of the classroom. While I would not dare contend that one day was enough to re-establish credibility, I do know that I am still hearing positive comments from classroom teachers in my graduate classes as well as in informal conversations.

"I would definitely recommend similar experiences for other education professors - and I would readily volunteer to participate again. I do think, however, that I would prefer a long period of involvement in order to evaluate some of my personal theories and ideas."

As for me, I found Mrs. Linda Bowman's fifth grade students more alike than different from the fifth grade class I taught in Bloomington, Indiana, in 1960-61 — my last year of public school teaching — and the fourth and sixth graders I taught earlier in the Brazosport Schools in the early '50's. As I looked into the eyes of the children, talked to them, and watched them interact with each other and do their assignments, I was reminded of specific personality types I had encountered before: the child who tries to please; the child who hungers for attention and will get it one way or another; the child who always finishes first, and the child who never finishes.

The greatest benefit I gained from the day was the confidence that I can teach today's child. I think teaching is more difficult now than it used to be, but I still could do it successfully on a fulltime basis. Knowing this, even from that one day back in the classroom, will give me a renewed air of authority as I meet my undergraduate and graduate students. And when I tell them what I did, my credibility just might improve to the point that they will believe what I tell them about teaching.

As these comments suggest, all four of us feel that our day of teaching was well worth the effort to arrange it. We endorse the concept that teacher educators can benefit from working periodically with children in a public school setting. Perhaps the only way such a concept can be translated into common practice statewide is for teacher education program standards to include such a requirement, as included in the current proposed revision of standards. Such a requirement should provide a great deal of latitude in its implementation, however. Schools, colleges, and departments of education should be able to work out a variety of arrangements with local schools to provide the professional development opportunities available through involving college professors in public school teaching. Certification program standards probably should not go beyond specifying a minimum number of clock hours of appropriate teaching experiences for teacher educators and teaching field professors who could benefit from the experiences.

Other examples of voluntary public school service by SFASU personnel can be cited. Dr. William Young, Professor of Music, taught music in the public schools of Lufkin and Tyler on a one-day-per-week basis during the 1981-82 academic year. Also, Dr. James DiNucci, Professor of Health and Physical Education, taught one hour per day for eighteen weeks in the Nacogdoches Public Schools.

Earlier, during the 1977-78 and 1978-79 academic years, Dr. John Thornton, Professor of Elementary Education, held a joint appointment as principal of Raguet Elementary School in Nacogdoches. That experience gave him new insights which he shared with his colleagues in the Department of Elementary Education and which he incorporated into the course that he teaches student teachers immediately preceding their entry into fulltime student teaching.

In summary, these things can be said about teacher education in Texas and at Stephen F. Austin State University: First, the winds of change are blowing as evidenced by the new entrance and exit examinations to be instituted in 1984 and 1986, respectively, and by new classes of certificates (Provisional, Standard, and Professional) which will take effect in 1986. Second, and more to the point of this article, certification program standards (that is, the requirements colleges must meet if they are to be approved to prepare teachers) are changing and one proposed change is to require college professors to "return to the trenches" to stay in touch with what is going on at the "battlefronts" in public education. Third, some professors at SFA, being visionary and courageous, have already pioneered some of the practices which soon may be institutionalized in the form of revised teacher education program standards.

Perhaps readers of this first issue of the SFA Journal of Education, particularly those who are alumni and friends of SFA, will take pride in what is happening at the "University Among the Pines". We would like to help create the future in education; at least, we intend to keep up with the present!

## **Nutrition Education in Public Schools**

Patsy Hallman

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Evidence of growing public concern for nutrition education prompted Texas educators to assess nutrition education being provided in the state. Texas has legislation providing for nutrition education in the public schools, but research describing it is limited. In order for educators to have a better view of what is being taught, a study was designed to gain information about the teaching of nutrition within the state.

The study focused on what nutrition concepts are being taught, subject areas where they are taught, the percentage of students enrolled, time provided for the concepts, methods and resources used in the classes, and teacher preparation in the area of nutrition. The sample was composed of 600 independent school districts randomly selected from the 1,105 districts in the state. Data were obtained from a mailed survey to the main office of each district contacted. Questionnaires, along with a letter of request for participation, were sent to the central office of each school district. Instructions which accompanied the letter and questionnaire requested that the information be provided by the school official who had access to information regarding nutrition education in the entire school district.

Completed questionnaires were received from 302 schools, providing a return of 50.3 percent. Among those supplying data were school superintendents, curriculum directors, principals, and teachers, but the greatest number (27.8 percent) of questionnaires was completed by classroom teachers.

Completed questionnaires were returned to schools in each state classification. The greatest number of respondents was from size 1A schools, while the smallest number was from size 4A schools. However, there was good representation of each of the five sizes of schools.

Results showed that 53.8 percent of high school students in Texas receive nutrition education in some form from one or more high school classes. For the elementary school student, the percentage is greater than for the high school student, with 59.5 percent of them receiving some type of instruction in nutrition. In the high schools, 22.4 percent of all students receive nutrition education in homemaking classes, while 21.6 percent of all students receive the study in health classes. In biology classes, 12.7 percent receive the instruction.

There were 237 respondents who completed the section indicating where nutrition is provided for the high school student. (Grades nine through twelve were considered high school.) Ninety-seven percent, or 230 schools, reported that nutrition education is provided within homemaking classes. Nutrition education provided within health classes was reported by 85.7 percent of the schools. Biology classes in 124 schools offered nutrition education. Five percent of the schools said that nutrition education is provided in other classes as well as in homemaking, health, and biology.

When size of school was considered, the smallest schools (A) provided instruction in nutrition for the lowest percent (49.1 percent) of students. The schools which provided nutrition education for the largest percentage of students were 2A schools (59.0 percent). Three-A schools have nutrition education for 53.4 percent of their students, 55.4 percent in 4A schools, and 5A schools provide it for 56.8 percent of the students. A greater percentage of students within smaller schools are enrolled in homemaking classes. This may serve to explain why 2A schools are providing nutrition education for the greatest percentage of students. Since data showed that 97 percent of all homemaking classes include nutrition concepts, it may be predicted that the smaller school will show a larger percentage of students receiving nutrition education.

Respondents were asked to indicate the amount of time given to nutrition concepts by the number of class periods in which nutrition was taught. Class periods were placed into groups of one period, two to five periods, six to ten periods, eleven to twenty periods, and over twenty periods. For biology classes at the secondary level, the greatest percentage was in the six to ten category with the median falling in the two to five category. For health classes, the greatest percentage of teachers provided two to five periods with the median falling in the six to ten category. In homemaking classes, 20 or more periods were assigned to nutrition.

Data showed preparation of teachers for teaching nutrition. Twenty-seven percent of the total group of teachers had no preparation, 16.8 percent had taken a university course; 48.5 percent had attended at least one in-service workshop on nutrition; and 4.3 percent reported some unidentified form of nutrition education. More high school teachers reported training for nutrition instruction in the form of in-service workshops than in university courses.

Homemaking teachers were reported to have had more formal preparation for teaching nutrition than any other group surveyed. Among homemaking teachers, 99 percent had a university course, and 79 percent had in-service training. For biology teachers, six percent had university course credit, 69 percent had in-service training, while 31 percent had no formal preparation. Among health teachers, one percent had a course in nutrition, 49 percent had no preparation, while 50 percent had in-service education.

Concepts treated in high school classes by at least two-thirds of the teachers of nutrition were the following:

Basic Four Food Groups  
Food Fads and Fallacies

Nutrition and Physical Health  
Nutrient Needs of the Young Adult  
Nutrient Sources  
Nutrient Functions  
Nutrient Deficiencies  
Relationships Among Exercise, Caloric Intake, and Body Weight

Additional topics, covered by at least fifty percent of the secondary teachers surveyed, include:

Nutrient Needs of the Child  
Nutrient Characteristics  
Nutrient Classification  
Food Selection Based on Sound Nutrition Information  
Interdependence of Nutrients in the Body

Results showed that homemaking teachers provided a significantly greater number of concepts for nutrition education than did other high school teachers. Significance was at the .05 level.

Teaching strategies used by teachers were multiple and varied. Lecture was the dominant method of teaching used; however, other frequently used teaching strategies included were films, bulletin boards, chalkboard, demonstration, discussions, laboratories, flip charts, transparencies, group processes, observations, games, and exhibits. Strategies with infrequent use (used by fewer than 25 percent of the teachers) were panels, case studies, debates, skits, team teaching, and interviews.

Resources for teaching were varied. Textbooks were used in 96.7 percent of the classes. Dairy Council materials were the second most frequently used resource with 92.5 percent of the schools using them. Popular magazines were used in 61 percent of schools while professional journals were used in only 41.9 percent of the schools. Table I shows correlation between size of school, amount of nutrition education provided in elementary schools, and nutrition instruction provided in the various high school classes. Analysis showed that there was a significant relationship at the .01 level between the size of the school and whether or not nutrition was a part of the health classes. The larger schools provided more nutrition education in health classes than did smaller schools. As the amount of preparation for teaching nutrition increased among teachers, the amount of nutrition education provided increased at an amount significant at the .01 level. Finally, as seen in Table I, there was a significant positive relationship between the amount of nutrition education taught and the number of teaching strategies employed by teachers.

## Summary

Analysis of the data acquired through this study prompted the following summary

statements:

1. In Texas, 53.8 percent of high school students are currently receiving nutrition education in some form.
2. In Texas, 59.5 percent of elementary school students are currently receiving nutrition education.
3. Within elementary schools, nutrition education is most often provided via health classes.
4. In elementary school classes, the majority of teachers spend two to five periods in nutrition education.
5. High school biology classes tended to allot six to ten periods for nutrition education.
6. High school health classes tended to provide two to five class periods for nutrition education.
7. Teacher preparation for teaching nutrition education tended to be from in-service workshops.
8. Twenty-seven percent of teachers had no preparation for teaching nutrition education.
9. Among all teachers the concept, "Basic Four Food Groups," was taught.
10. Lecture was the dominant teaching technique used.
11. The most frequently used resource for teaching nutrition were textbooks and Dairy Council materials.
12. Teachers with more preparation in nutrition provided a significantly greater amount of nutrition education than did teachers with no formal training.

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Table I

PEARSON'S CORRELATION COEFFICIENTS FOR SELECTED VARIABLES  
IN RELATION TO AMOUNT OF NUTRITION EDUCATION PROVIDED

Variables	Homemaking	Biology	Health
Size of School	-.0316 NS	-.0152 NS	.1645 **
Amount of Nutrition Education of Teacher	.2548 ***	.1612 **	.1914 ***
Introduction of Nutrition Education in Elementary School	.2620 ***	.1218 *	.1778 **
Number of Strategies	.1672 **	.2167 ***	.1149 *

NS Not Significant

\* Significant at the .05 level of confidence

\*\* Significant at the .01 level of confidence

\*\*\* Significant at the .001 level of confidence

# **A Study to Determine Differences Among Attitudes Toward Physical Activity and Levels of Body Fat in Fifth Grade Children**

Douglas J. House and Ronnie G. Barra

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Educators have been concerned with children's recreation and play patterns for many years. It has been only recently, however, that an appropriate testing instrument has been developed to measure children's attitudes toward physical activity in one of the most critical periods of child development, that being middle childhood.

The middle childhood period is recognized by researchers (3, p. 13) as "a time in the child's life when he is not only collecting and organizing information but when he is also developing his basic attitudes". Tutko and Burns (25, p. 19) report, "The years between eight and twelve are a vital identifying period, a time when children are trying to find themselves, in a psychological sense.... It is a period of building confidence and taking on an attitude about themselves." Cratty reports (5, p. 47) "The types of physical activities in which people participate in later life probably become established during youth." According to Simon and Smoll (19, p. 409), "Because of the lack of an appropriate testing instrument, attitudes of elementary school children toward physical activity have not been investigated. The dearth of knowledge concerning attitudes toward physical activity during the period of middle childhood constitutes a critical void."

## **Purpose of the Study**

Recognizing the importance of middle childhood in relation to attitude formation, the following study was undertaken in order to supply additional information pertinent to children's attitudes toward physical activity. Specifically this study was to determine if differences exist among fifth-grade children of varying body fat levels with respect to their attitude toward physical activity as measured by a six factor multidimensional attitudinal instrument.

## **Delimitations of the Study**

This study was subject to the following delimitations: (a) subjects used in this study were 79 randomly-selected fifth grade boys and girls ages ten through twelve enrolled in the



Nacogdoches Independent School District, Nacogdoches, Texas, during the spring of 1979; and (b) the sample population consisted of 43 boys and 36 girls, ages ten through twelve from the Nacogdoches Independent School District's three elementary schools.

### **Explanation of Terms**

The following groups were classified according to norms established from two national surveys which sampled 13,882 boys and girls(15).

- Fat Group** Classification of subjects were determined by the sum of the average triceps and subscapular skinfold measurements. The lower thirty-three percent of the norms constituted the fat group.
- Lean Group** Classification of subjects were determined by the sum of the average triceps and subscapular skinfold measurements. The upper thirty-three percent of the norms constituted the lean group.
- Middle Group** Classification of subjects were determined by the sum of the average triceps and subscapular skinfold measurements. The middle thirty-four percent of the norms constituted the middle group.

### **Review of Literature**

The following is an overview of literature relative to the attitudinal testing instrument used in this study:

Kenyon(9, 10) made significant advancements in attitude research in physical education by conceptualizing physical activity into six dimensions. Since its development, the Attitudes Toward Physical Activity Inventory, (ATPA, ATPAI) has been included in numerous studies (2, 13, 6, 23, 14, 24, 11, 26, 22, 4, 16, 1, 18, 21, 7).

Simon and Smoll (19) adapted Kenyon's Attitudes Toward Physical Activity Inventory for use with young children, grades four through six entitled The Children's Attitude Toward Physical Activity (CATPA) inventory. The CATPA instrument recognizes physical activity as a multidimensional concept, and was the instrument selected for use in this study. Work by Schultz and Smoll(17) gives additional conformation as to the strength of the instrument. The selection of the instrument was subject to the following criteria; (a) administrative feasibility, (b) appropriate for age level subjects, (c) ease and clarity of interpretation of results, (d) accepted validity, and (e) accepted reliability.

The Children's Attitudes Toward Physical Activity Inventory has been used by several researchers(20, 12, 8).

It should be noted that none of the studies reviewed investigated attitudes toward

physical activity as dependent upon body fat composition.

## **Procedures for the Study**

### *Permission to Use Students:*

Permission to use students from the three elementary schools in the Nacogdoches Independent School District was obtained by following guidelines established by the Nacogdoches Independent School District. A letter of parental consent to participate in the study was approved by a Program Evaluation Committee and the elementary principals. The procedures for the construction of the parental consent letter was in compliance with the Code of Federal Regulations, Protection of Human Subjects Policy (Note 1).

### *Selection of Subjects:*

Letters of parental consent to participate in the study were given to 160 students. A table of random numbers was used to select eighty boys and eighty girls from the total fifth grade population. Returned affirmative consent letters were received from forty-three boys and thirty-six girls. Seventeen students declined to participate in the study. The final subject count for the investigation constituted seventy-nine students; forty-three boys and thirty-six girls.

### *Classification of Subjects into Body Fat Levels:*

Lang skinfold calipers were used for the collection of data. Three skinfold measurements using the calipers were recorded for both the right triceps and right subscapular sites for each subject. The sum of the mean triceps and mean subscapular measurement and the subjects age and sex were used to determine the body fat level classification of the students based on percentile norms provided by the National Center for Health Statistics (Explanation of Terms). The three groups selected were composed of 18, 29, and 32 subjects representing the body fat levels: Lean group, Middle group, and Fat group respectively.

### *Instructions to Students:*

Included in a presentation to the students were: an introduction of the investigator and assistant, an explanation of physical activity, directions for answering the test, and instructions for the assessment of skinfold measurements.

### *Testing Schedule:*

Skinfold measurements were recorded following the administering of the CATPA instrument. In one school the skinfold measurements were taken immediately following the

CATPA inventory; in another the following day; and the final school's skinfold values were taken five days following the CATPA exposure.

All skinfold measurements were recorded in a screened area with only the subject and the investigator or assistant present. Classrooms or libraries were provided for CATPA testing facilities.

#### *Statistical Analysis of Data:*

In reference to the CATPA inventory, the semantic differential technique rating scale was utilized. A one-way analysis of variance was used to test for significant differences ( $p < .05$ ) among the independent body fat levels according to each independent domain variable. A one-way analysis of variance was used to determine whether significant differences ( $p < .05$ ) existed among the fat levels and the composite scores of the six domains. The program selected was the Statistical Package for Social Sciences (SPSS), one-way analysis of variance, from the Stephen F. Austin State University Computer Center.

#### **Analysis of Data**

Analysis of variance indicated no significant differences among the three fat levels and each of the six domains of physical activity (see Table I).

TABLE I

Analysis of Variance p- Value Table for Three Mean Body Fat Levels and Mean Scores on the Six Independent Domains of the CATPA Inventory

Domain	P-Value
Social	.6788
Health and Fitness	.5255
Thrill with Risk	.5667
Beauty in Movement	.7631
Release of Tension	.9259
Long and Hard Training	.3375

The data suggests that there were no significant variations among the attitudes of the varying body fat levels with respect to any of the independent items on the multidimensional inventory.

Further, analysis of variance indicated no significant differences among the three body fat levels and total scores on the six domains of physical activity (p-value of .9442). This data indicates there were no differences among students of varying body fat levels with respect to their attitude toward physical activity as a total concept.

## **Conclusions, Discussion, and Recommendations**

### *Conclusions:*

Based on the parameters of the study and the results presented, the following conclusions can be made:

There is no significant difference in attitudes toward physical activity among fifth-grade children with varying body fat levels when investigated in relation to six independent attitudinal domains or by total domain response.

### *Discussion:*

These demonstrated similarities in attitudes are interesting and should be of value to the practitioner and the future researcher. Additional research is needed, however, in order to make more positive statements concerning the effect that varying body fat levels has upon attitudes toward physical activity in middle childhood.

### *Recommendations:*

The void in literature suggests that more study needs to be conducted into the significance of body fat upon children's attitudes toward physical activity and the selection of play activities. As an outgrowth of the present study, it would be beneficial to investigate fifth grade children in extreme body fat percentiles with respect to their attitudes toward physical activity. Another extension of this investigation should be to study the influence of sex differences as it relates to body fat levels and attitudes toward physical activity in fifth-grade children.

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### Reference Note

1. *Code of Federal Regulations 45CFR46: Protection of Human Subjects (46.103 Definitions)*. Nacogdoches, Texas: Stephen F. Austin State University, Human Subjects Committee at SFASU, April 1977.

# **Effects of Two Instructional Techniques Used with the Ford Power Train Simulator on the Performance of Mississippi Vocational Agriculture Students**

Dale Perritt and Glen C. Shinn

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## **Introduction**

In recent years, the power train unit has been considered a means of simulating the service and repair of agricultural tractors. Jacobs(6) indicated some 1,767 units had been distributed to high schools, vocational schools, and community colleges. He further indicated that many of the units were not being used to their potential. A recent survey by the State Department of Education in Mississippi indicated that of the 40 power train units in vocational agriculture departments in Mississippi, many were not being used. This lack of use raises the question of the power train's importance as an instructional aid; if implemented into the teaching process, what instructional technique will improve its effectiveness?

## **Objectives of the Study**

The purpose of this study was to compare the effects of two instructional techniques using the Ford power train unit as an instructional aid. The instructional techniques used in the study were traditional lecture-demonstration and small group self study. Instruction in this study was focused on valve train-cylinder head service and repair. Specifically, the study attempted to answer the following research questions:

1. What are the short and long-term effects of an instructional technique on cognitive performance scores?
2. What are the effects of an instructional technique on motor skill performance scores?
3. What are the effects of an instructional technique on student attitude?
4. Will there be an aptitude-treatment interaction between the instructional technique and student mechanical aptitude level?

## *Definition of Terms*

**Power train unit.** The power train unit is an instructional simulator which consists of the engine and its auxiliary components, the transmission and final drive of an agricultural tractor.

**Trac-Com System.** The Trac-Com System is an audiovisual instructional system developed by Ford Tractor Company to train persons employed as mechanics and servicemen in Ford tractor dealerships. Filmstrip-audio-tape presentations have been developed for all major systems on the Ford tractor.

## **Methods and Procedures**

### *Research Design*

This study was conducted as a posttest-only control group experiment utilizing a 2 x 2 factorial design as described by Campbell and Stanley(1). The study was expanded to test for effects extended in time by adding a second cognitive posttest three weeks following the treatments. The experimental independent variables manipulated by the researcher were (1) the type of instruction and (2) mechanical aptitude level. Dependent variables for the experiment were cognitive, psychomotor, and attitude posttest scores.

### *Population*

The population of this study consisted of 33 vocational agriculture departments in Mississippi whose laboratory facilities included a Ford power train unit readily available for use as an instructional aid. Eight schools were randomly selected from the population to participate in the experiment. Three schools with 10 students from each school were randomly selected and assigned to Treatment A, traditional lecture-demonstration. Six schools with five students from each school were randomly selected and assigned to Treatment B, small group self-study. Treatment A served as the control group for the experiment. One school participated in both treatment groups.

### *Pilot Study*

A pilot study was conducted in one school which was included in the population but not randomly selected as part of the experiment. The principal investigator directed and analyzed the procedures and results. Minor revisions were made in the procedures as a result of the pilot study.

### *Treatments*

Two sets of data were collected from the students prior to the treatments. First, self-reported overall grade point average was collected for use as a covariate in the statistical



analysis. Second, students in both groups were given the Science Research Associates "Test of Mechanical Concepts", Standard and Bode(14). These scores were used to determine student mechanical aptitude level.

Students in both treatment groups were given identical criterion-referenced objectives at the beginning of the treatments. Students in Treatment A then received approximately four hours of classroom instruction on valve train-cylinder head service and repair through a lecture-demonstration technique. Instructional materials used to teach theory, service and repair of the valve train system were selected from *Pre-employment Laboratory Training in Agricultural Machinery Service and Repair*, Texas Vocational Instructional Service(16).

In the laboratory for Treatment A, students received approximately six hours of demonstration and practice in valve train-cylinder head disassembly, inspection, repair and reassembly. Students completed a laboratory exercise sheet which outlined procedures, specifications and recommendations for parts analysis. All instruction in Treatment A was directed by the vocational agriculture teacher in each school.

Students in Treatment B received instruction via a small group self-study technique. At the beginning of the treatment, students were given an instructional packet outlining the learning process. Following an explanation of the instructions, students viewed the Ford Trac-Com Audiovisual System film entitled "Valve Train". Classroom worksheets reinforcing concepts established in the presentation were completed by each student.

In the laboratory, students completed an exercise identical to that used with Treatment A. In Treatment B, however, students worked in a small group, independent of direct teacher demonstration and supervision. The teacher served only as a resource person in both classroom and laboratory instruction.

### *Instrumentation*

A cognitive posttest was developed by the researcher to measure cognitive performance immediately following the treatments. A parallel form of the cognitive posttest was also given three weeks following the treatments to test for effects extended in time. The cognitive posttest which consisted of 30 multiple-choice items, was field-tested with three individual groups to establish item reliability. An alpha coefficient item reliability of .65 was established for the instrument. A panel of experts examined the test instrument for content validity.

A psychomotor posttest and scoresheet were developed by the researcher to measure motor skill performance in the area of valve train-cylinder head service and repair. Acceptable mechanical practices were followed in establishing criteria for adjustment of intake and exhaust valve lash. Students were allowed 10 minutes to complete the test. A panel of experts examined the instrument for content validity.

A semantic differential attitude scale was used to measure student attitude toward the instructional technique in each of the treatments. An alpha coefficient instrument reliability of .94 was established by Stone(15).

## Analysis of Data

Subjects within each of the two treatment groups were assigned to subgroups on the basis of the Science Research Associates "Test of Mechanical Concepts" scores. Subjects scoring below the mean were classified as low mechanical aptitude. Subjects scoring at the mean or above were classified as high mechanical aptitude. Refer to Table 1 for a diagram of the two-way statistical matrix.

A two-way analysis of covariance was used to analyze the data collected in the posttest attitude scale. F values were calculated for the following: the main effects (instructional technique and mechanical aptitude level), the covariate (grade point average), and the two-way interaction between the instructional technique and mechanical aptitude level. A .10 alpha level was set *a priori* as the significance level by the researcher.

A Duncan's Multiple Range *post hoc* test was used when a significant difference was found within the four subgroups. Cochran's C and Bartlett-Box F tests were used to determine if the homogeneity of variance assumption for analysis of variance was satisfied.

## Results

Statistical analysis indicated that cognitive and psychomotor posttest scores were not significantly different when performance was measured immediately following the treatments. However, mean scores from a delayed cognitive posttest indicated a significant difference at the .01 alpha level. The alpha level for evaluation of the second cognitive posttest was raised from .10 to .01 after a homogeneity of variance test indicated a violation of this assumption for analysis of covariance (Kennedy, 8).

A Duncan's *post hoc* analysis indicated that students with high mechanical aptitude assigned to Treatment B scored significantly higher than students with low mechanical aptitude assigned to Treatment A. Table 2 presents adjusted mean scores for the delayed cognitive posttest.

The Semantic Differential Attitude Scale indicated that student attitudes toward the instructional techniques did not differ significantly. Even though attitudes did not differ significantly, the F value for the two-way interaction resulted in a significant interaction between the main effect variables, instructional technique and mechanical aptitude level. Students in Treatment A with high mechanical aptitude had the most positive attitude while students in Treatment B with high aptitude had the most negative attitude. Figure 1 presents a graph of the interaction of the main effect variables, instructional technique and mechanical aptitude level.

## Implications and Recommendations

Differences between the two treatment groups were not statistically significant when student performance was measured immediately following the treatments. Based on these findings, instruction in valve train-cylinder head service and repair may be implemented to

meet the needs of the multidimensional learning situation, either small group self-study or traditional, without significantly affecting immediate student performance. The use of the Trac-Com System in small group self-study may provide a practical means of alleviating problems caused by large classes. Small groups using the power train simulator and the Ford Trac-Com System may independently study the valve train-cylinder head assembly or other tractor systems leaving the instructor more options for large class management.

It was found that students in Treatment B, small group self-study, scored significantly higher on a delayed cognitive posttest than did Treatment A students. Because long-term retention is of major importance, it is recommended that the use of small group self-study be employed in teaching other systems on the agricultural tractor as well as valve train-cylinder head service and repair.

Attitude scores indicated a significant aptitude-treatment interaction. Students scored higher with self-study but had a negative attitude toward it. High mechanical aptitude students were most negative toward small group self-study and most positive toward traditional lecture-demonstration technique. The researcher analyzed the reasons for the negative attitude toward self-study in the following statements:

1. Self-study is hard work and requires self-motivation.
2. Self-study lacks positive teacher reinforcement.
3. Self-study is somewhat impersonal.

The researcher recommends that teachers using the small group self-study:

1. use an interest approach to properly motivate students to learn;
2. reinforce student success on an individual basis; and
3. scrutinize student performance by insisting on quality work.

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**Table 1**

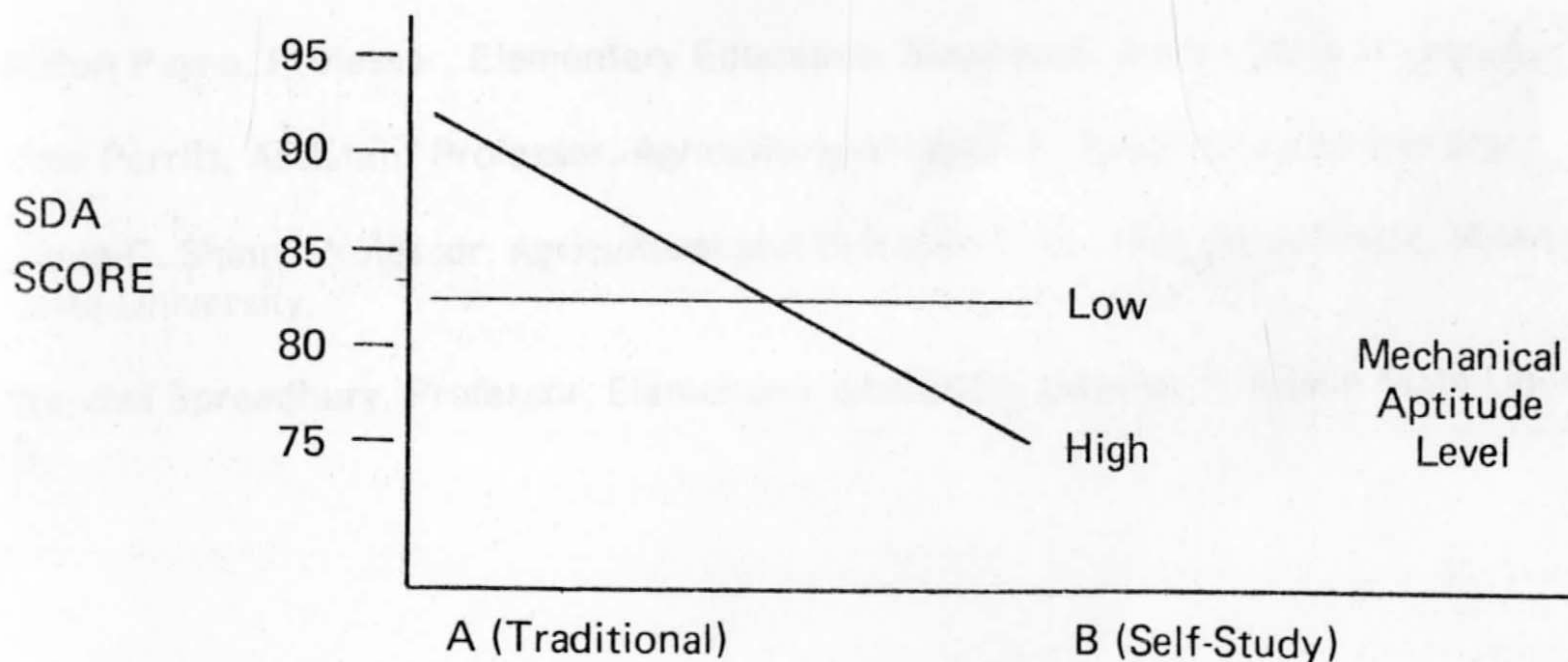
Two-Way Statistical Matrix Showing Instructional Technique and Mechanical Aptitude Level

Instructional Technique	Mechanical Aptitude Level	
	Low	High
A (Traditional)	$X_{AL}$	$X_{AH}$
B (Self-Study)	$X_{BL}$	$X_{BH}$

**Table 2**

Adjusted Mean Scores of Two-Way Analysis  
for Cognitive Posttest Two

Instructional Technique	Mechanical Aptitude Level	
	Low	High
A (Traditional)	32.47	37.67
B (Self-Study)	44.14	48.59



**Figure 1**

Significant Interaction of Instructional Technique  
And Mechanical Aptitude Level on Semantic  
Differential Attitude Scale

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