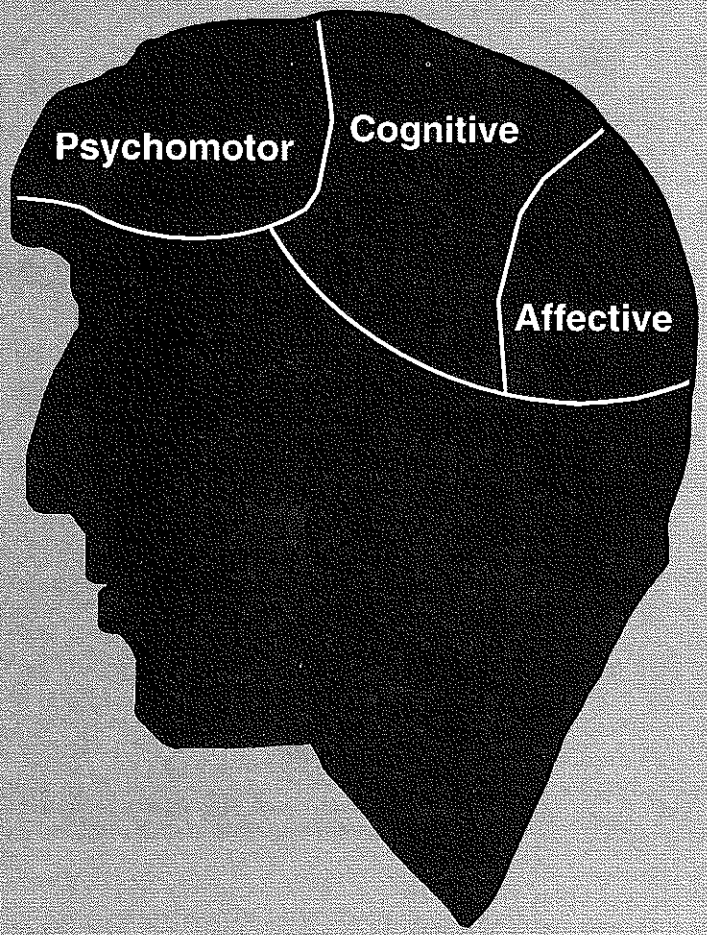
# The Agricultural Education Magazine

September, 1992
Volume 65
Number 3




## Focus on Teaching

THE
# AGRICULTURAL EDUCATION
MAGAZINE

Today's Science, Tomorrow's Agriculture

September, 1992 Volume 65 Number 3



## Table of Contents



### ARTICLE SUBMISSION

Articles and photographs should be submitted to the Editor, Regional Editors, or Special Editors. Items to be considered for publication should be submitted at least 90 days prior to the date of issue intended for the article or photograph. All submissions will be acknowledged by the Editor. No items are returned unless accompanied by a written request. Articles should be typed, double-spaced, and include information about the author(s). Two copies of articles should be submitted. A recent photograph should accompany an article unless one is on file with the Editor. Articles in THE MAGAZINE may be reproduced without permission.

### PUBLICATION INFORMATION

THE AGRICULTURAL EDUCATION MAGAZINE (ISSM 7324677) is the monthly professional journal of agricultural education. The journal is published by THE AGRICULTURAL EDUCATION MAGAZINE, INC., and is printed at M & D Printing Co., 616 Second Street, Henry, IL 61537.

Second-class postage paid at Mechanicsville, VA 23111; additional entry at Henry, IL 61537.

POSTMASTERS: Send Form 3579 to Glenn A. Anderson, Business Manager, 1803 Rural Point Road, Mechanicsville, Virginia 23111.

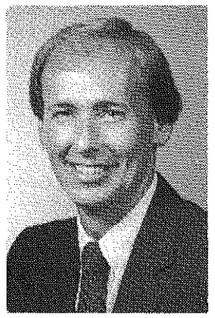
### SUBSCRIPTIONS

Subscription prices for THE AGRICULTURAL EDUCATION MAGAZINE are $7 per year. Foreign subscriptions are $20 (U.S. Currency) per year for surface mail, and $40 (U.S. Currency) foreign airmail (except Canada). Student subscriptions in groups (one address) are $4 for eight issues. Single copies and back issues less than ten years old are available at $1 each ($2.00 for foreign mail). All back issues are available on microfilm from Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, MI 48106. In submitting subscriptions, designate new or renewal and address including ZIP code. Send all subscriptions and requests for hardcopy back issues to the Business Manager: Glenn A. Anderson, Business Manager, 2441 Suzanne Rd., Mechanicsville, VA 23111. Publication No. 73246





# Why We Teach



By ED OSBORNE, EDITOR

*Dr. Osborne is associate professor and program chair of agricultural education at the University of Illinois.*

I just finished reading an inspirational little book titled *A Journey of the Heart; The Call to Teaching* (Bogue, 1991). The author offers descriptions of real-life teachers and teaching scenarios to applaud the efforts of today's teachers. The bottom line in this writing is that teachers teach because they choose to teach, and they choose to teach because they care for students and love to see learning take place. The book is filled with thoughtful and encouraging statements about teaching and teachers. Let me share a few quotations with you in hopes that you will be equally inspired and motivated to pursue the everyday challenges of teaching with confidence and renewed spirit.

***On Schooling . . .***

If Americans believe that our schools are going to be the only salvation for the moral rot in our families, then we are a foolish and mistaken people. We are a nation at risk for many reasons other than our schools.

One way to make every student a winner is to emphasize performance rather than pedigree.

Balance competition and equality. Competition motivates, but unbridled competition leads to selfishness and dishonesty. On the other hand, an overemphasis on equality smothers initiative and creates mediocrity.

Promote partnerships in learning: between the home and family, between schools and colleges and universities, and between schools and the community.

***On Learning . . .***

Can you remember the uneasy feeling as you entered a classroom wondering if you could master the subject and meet the expectations of the teacher? I can't remember any moments like that as a youngster, but I can remember lots of them as I grew older. Does our natural sense of wonder and curiosity shut out that anxiety when we are little children? When do we learn to be afraid of learning?

We all face that moment of uncertainty and fearfulness - when we attempt to learn a new skill or grasp a new idea. There is the possibility that we might fail. But the learner who overcomes anxiety becomes heir to new joys. No risk, no achievement. Courage is not the absence of fear. It is the willingness to proceed in the face of that fear. Reflection and action are partners in the learning process.

Too often in our teaching we stress the arrival and not the journey.

Adversity (challenge from competing ideas) strengthens our knowledge and convictions, deters arrogance, and teaches the value of mistakes and failure.

***On Teaching . . .***

The standards of our schools and the performance of our students rest in the hearts and minds of those who teach.

Rather than become bitter when society criticizes our profession and our schools, let us celebrate the nobility of our work and rejoice that teaching is the most completely constructive and positive force in our nation.

There is a reasonably well developed scientific basis for the art of teaching. It is amazing that so many otherwise informed and educated adults take the position that teaching is a simple combination of subject matter mastery and common sense. But take those bank vice-presidents, etc., and put them in a class with 25 kindergarteners (or high schoolers) in a crowded room on a 90-degree day and see how long it takes them to change their mind about whether there is anything to know about teaching. Many of my professional friends in other fields would become mental basket cases if they faced the same environment and mental challenges that teachers face on a daily basis.

The greatest act of teaching is to expect the best each student's talent can deliver. The greatest pleasure in teaching is to see talent unfold.

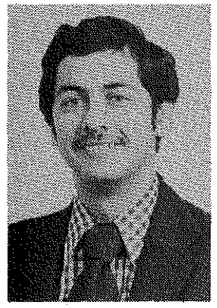
Teachers are in the business of breaking the bonds of ignorance and cultivating curiosity. Teachers are in the business of provoking students with good questions and having those students in turn frame good questions. The ultimate outcome of teaching is a student empowered by a sustaining curiosity and sense of wonder. The ultimate joy in teaching is to see a student enraptured by a moment of discovery.

If there is anything that constitutes an act of loving, it has to be teaching.

**References**

Bogue, Grady E. (1991). **A Journey of the Heart: The Call to Teaching.** Bloomington, IN: Phi Delta Kappa. ■

# Teaching is Tough



By JAMIE CANO,
THEME EDITOR
*Dr. Cano is assistant professor of agricultural education at The Ohio State University.*

Teaching is tough! Thinking of other occupations as intellectually, physically, and psychologically as demanding as teaching agriculture is difficult. Who else but agriculture teachers must keep well informed in more than one discipline, must organize and manage one or more groups of students, and must provide for both their success and satisfaction? Who else must be concerned not only with the student, but with maintaining good relationships with the student's family? Who else is constantly second-guessed by nearly everyone about what to do and how to do it? What other occupational group is constantly barraged with national criticism?

Yes, teaching is tough, and that is why agriculture teachers have so many legitimate concerns and problems. One fact which is undeniable, however, is that the cornerstone of the agriculture program is and must be the teacher. The success of the program or lack of same, is directly related to the competency and commitment of the agriculture teacher. Newcomb, McCracken and Warmbrod (1986) stated that competence in teaching methods, along with competence in the technical subject matter, is essential to be effective as a teacher of agriculture. Like the master engineer or artist, the effective teacher must have a thorough knowledge of the methods and principles essential for professional competence.

To achieve professional competence in agricultural education, the agriculture teacher must achieve competence in the three components of agricultural education: classroom instruction, SAE, and FFA. The first and most fully acknowledged component of a local agriculture program is classroom instruction. Instruction is the job for which most agricultural teachers are primarily hired and, incidentally, the basic reason for students being in the program.

If indeed it is true that the primary responsibility of the agriculture teacher is classroom instruction, then the question must be raised about teaching effectiveness. How effective are teachers of agriculture? Better yet, what are some strategies, techniques, or methods that agriculture teachers may use to become more effective teachers?

Several questions come to mind when asked about more effective teaching. When was the last time that the teacher checked his/her teaching style to ensure that at least in part, the teaching style somehow matched the learning style of the students? How do teachers measure or assess the learning style of their students? How can teachers assess their teaching style?

Other pertinent questions are: What are the characteristics of an effective teacher? What has been learned through research about effective teachers? How can the teacher of agriculture measure or verify the effective teaching characteristics occuring within the classroom?

Other questions which come to mind include: What are some pointers or suggestions to use when working with students, school personnel, and the community? What would your high school principal identify as the elements of effective teaching? When state supervisors visit, what do they use as a basis for evaluation of effective teaching? What are some tools for measuring effective teaching? And finally, what can teachers learn from their students about effective teaching?

Yes, many questions need to be raised. But, where are all the answers? Answers to the foregoing questions are not so simple. However, several professionals have attempted to respond to many of the questions raised. This issue of *The Agricultural Education Magazine* combines methods, strategies, and techniques with advances in educational psychology, particularly cognitive science and humanism. The attempt was to blend current concepts and practices of critical thinking and learning strategies with what is known about student motivation and self-esteem. Thus, all domains of learning; cognitive, affective, and psychomotor are considered.

**REFERENCES**

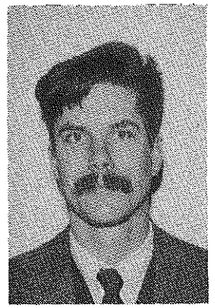
Newcomb, L.H., McCracken, J.D., & Warmbrod, J.R. (1986). **Methods of Teaching Agriculture**. Interstate: Danville, IL. ■

*Cover illustration provided by Thad Welch, a graduate student in agricultural education at Ohio State.*





# Teaching Students with Different Learning Styles



By MATT RAVEN
*Dr. Raven is assistant professor in the Department of Agricultural and Technology Education at Montana State University.*

Your lesson was well-organized and the objectives clear. The majority of the students learned what you wanted them to learn. However, some students could not grasp the material even though they tried. Even with individual assistance from you, the students still had a hard time reaching your objectives. Does this scenario sound familiar? It has happened to me, and it was not the students' lack of intelligence that was obstructing their learning. Rather, their learning style was incompatible with my instructional methods.

Learning styles are stable characteristics of students and are expressed through the interaction of one's behaviors and personality as they approach a learning task (Garger and Guild, 1984). The late Herman A. Witkin, a pioneer in learning styles, defined learning style in process terms. Witkin argued that learning styles are concerned with the form rather than the content of the learning activity. Learning styles refer to individual differences in how we perceive, think, solve problems, learn, and relate to others (Witkin, Moore, Goodenough, and Cox, 1977).

Witkin spent much of his academic career developing measures of learning style. Witkin's work concentrated on determining to what extent a person's perception of an item was influenced by the surrounding field in which the item appeared. Witkin wanted to determine if some people saw the tree, while others saw the forest.

## Measuring Learning Styles

Witkin's research showed that there were differences in how people perceived discrete items within a surrounding field. People at the one end of the extreme where perception was strongly dominated by the prevailing field were designated "field-dependent." The field-dependent learners see the forest. At the other extreme, people were considered "field-independent", if they experienced items as more or less separate from the field. Whereas field-dependent people see the forest, field-independent learners see the tree within the forest. Since scores on learning style tests form a continuous scale, the terms field-dependent and field-independent reflect a tendency, in varying degrees of strength, toward one end of the extreme (field-dependent) or the other (field-independent) (Witkin et al, 1977).

A number of instruments have been developed to measure a person's learning style. One of the easiest to administer, especially in group situations, is the Group Embedded Figures Test (GEFT) (Witkin, Oltman, Raskin, and Karp, 1971). The GEFT is a perceptual test which requires the subject to locate a previously seen figure within a larger complex figure. The GEFT, which is comprised of 18 complex figures, can be administered in 20 minutes and can be quickly scored using answer templates from the test distributor.

Subject's scores on the GEFT range from 0 to 18 with the number correct being the score. The national norm on the GEFT is 11.4 correct. The higher the score above the group mean the more the person is considered to be field-independent. Conversely, the lower the score below the group mean the more the person is field-dependent. It must be stressed that learning styles are independent of intelligence. Remember, field-dependence/field-independence is more related to the PROCESS of learning, not the APTITUDE for learning. Both field-dependent and field-independent people make equally good students as well as teachers.

## Application to Education

Witkin was convinced, based on over two decades of research, that whether one is field-dependent or field-independent influences a person's learning and resultantly has wide application to teaching and learning theory. Not only does a person's learning style influence the way the person learns, but learning style also has implications on how they teach others.

Consequently, teachers that are aware of their learning style, as well as the styles of their students, are better able to make sure that any differences between their learning styles will not impede learning. The key to teaching students with different learning styles is the identification of your own learning style as well as your student's styles. →

## Identification of Learning Styles

Identification of learning styles can be made without testing. By observing students, listening to their questions, and determining the work patterns of the learners, learning style can be determined. Common traits of field-dependent and field-independent learners and teachers can be found in Table 1. However, when possible, students should be tested to confirm the observations. The school psychologist or a qualified counselor can help administer the GEFT to determine the student's cognitive style.

## Dealing With Differing Learning Styles

One would expect field-dependent learners to have difficulty grasping a subject if their instructor exclusively used a field-independent teaching style or vice versa. If a field-independent teacher was trying to motivate students by giving students freedom to design their own learning structure, a field-dependent learner would be frustrated instead of motivated. Consequently, teachers need to be sure that their instructional methods meet the learning styles of both field-dependent and field-independent students. Additionally, a teacher must be flexible in their motivational techniques.

An all out effort must be made to ensure that a wide variety of interest approaches are used that will motivate both field-dependent as well as field-independent learners. Providing students with a choice in projects and methods to accomplish those projects is one way to make sure that all learning styles are being addressed. For example, a teacher could let students choose to either work in a group or by themselves on an assignment. The best strategy would provide an opportunity for field-dependent and field-independent students to select the method of studying that best meets their learning style.

## Learning Styles and Problem Solving

The use of the problem-solving approach to teaching is an instructional strategy that incorporates many field-dependent and field-independent characteristics. Problem solving helps students see relationships, make broad general distinctions among

*(Continued on page 15)*

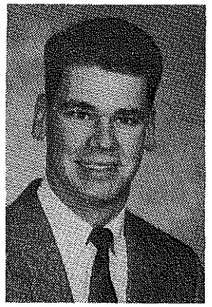
| Field-Dependent | Field-Independent |
|---|---|
| **Learning Styles** | |
| • perceives globally | • percieves analytically |
| • experiences in a global fashion, adheres to structures as given | • experiences in an articulated fashion, imposes structure or restrictions |
| • makes broad general distinctions among concepts, sees relationships | • makes specific concept distinctions, little overlap |
| • social orientation | • impersonal orientation |
| • learns material with social content best | • learns social material as an intentional task |
| • attends best to material relevant to own experience | • interested in new concepts for their own sake |
| • requires externally defined goals and reinforcements | • has self-defined goals and reinforcements |
| • needs organization provided | • can self-structure situations |
| • more affected by criticism | • less affected by criticism |
| • uses spectator approach for concept attainment | • uses hypothesis-testing approach to attain concepts |
| **Teaching Styles** | |
| • prefers teaching situations that allow interaction and discussion with students | • prefers impersonal teaching situations such as lectures, emphasizes cognitive aspects of instruction |
| • uses questions to check on student learning following instruction | • uses questions to introduce topics and probe student answers |
| • uses student-centered activities | • uses teacher-organized learning situation |
| • viewed by students as teaching facts | • viewed by students as encouraging to apply principles |
| • provides less feedback, avoids negative evaluation | • gives corrective feedback, uses negative evaluation |
| • strong in establishing a warm and personal learning environment | • strong in organizing and guiding student learning |

Table 1. Field-Dependent and Field-Independent Characteristics (Garger & Guild, 1984)





# The Million Dollar Quarterback

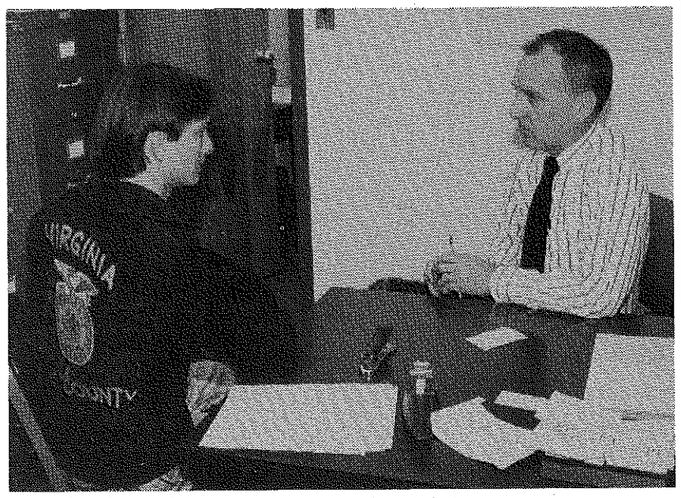


By MATT LOHR

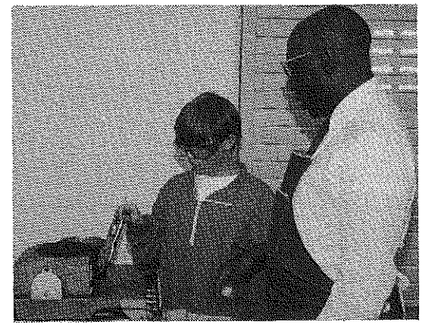
*Mr. Lohr is an undergraduate student in agricultural education at Virgina Tech.*

With the professional football season fast approaching, sports pages of newspapers everywhere are filled with big names like Mark Rypien, John Elway, Dan Marino, and Jim Kelly. What do all of these great name players have in common? They are all million dollar quarterbacks for successful NFL teams. Behind every NFL power house, a supposedly invincible quarterback is contracted to lead the team to success. The quarterback calls the plays, sets the tempo, generates enthusiasm, communicates with all the divisions, and acts as an all-around role model and leader. Simply put, a quarterback makes or breaks the TEAM!

In the professional realm of agricultural education, the all-American quarterbacks exist throughout the land in the form of agriculture instructors. Although agriculture instructors are not on contracts that earn millions of dollars annually, they are vital in leading their own student teams to success. As in the game of football, today's agriculture instructors possess million dollar qualities that determine the fate of their teams! Teachers of agriculture develop lesson plans, create the atmosphere and tempo of the class, generate enthusiasm and excitement among the students, communicate with all areas of the school and community, and serve as role models for others.



*Personal conferences help teachers get to know their students.*



*Working individually with a student, the teacher is able to strengthen student-teacher relationships.*

Traveling as a National FFA Vice President the past year was indeed a tremendous learning experience. During my year, I witnessed America's finest teachers at work. Since I am an agricultural education major at Virginia Tech, I am always alert to new ideas and techniques in teaching. After I retired as a national officer, I asked myself what truly separated the most successful teacher from the mediocre one. What made some programs flourish while others lagged? The answer can be summed up with three words: **Communication, Communication, and Communication!** The best teachers are those that can educate and express their ideas with students, the school, and the community. Success is the result of basic communication!

## Respect and Concern for Students

Almost inevitably, the most effective teachers I witnessed communicated a feeling of respect and concern for their students. The agriculture teachers looked professional, possessed a high energy personality, quickly learned the students' names, and effectively operated an open door policy. The most effective agriculture teachers were always prepared to teach to the needs of the class and acted as a true friend. The environment was clean, colorful, and created a "want-to-learn" atmosphere. The following examples are just a few of the effective "respect and concern for student" techniques I experienced:

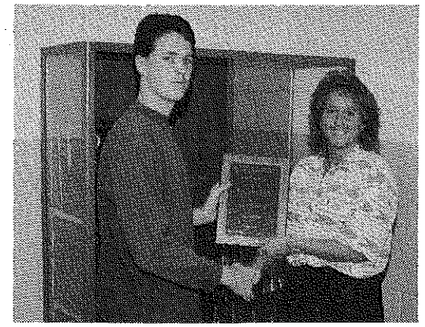
1. Day number one. The teacher took a survey finding out exactly what the students expected and wanted to learn.

→

The teacher's expectations and hopes for the class were then explained.

2. One teacher felt "positive attitude" was important, so the class read a motivational book every six weeks. Examples included Zig Ziglar's *See You at the Top* and Dale Carnegie's *How to Win Friends and Influence People.* The class was tested, and the motivational book test grade was averaged in with the other grades. The teacher noticed big improvements by the end of the year.
3. Another teacher felt that current issues were vital, so once a month the class had "discussion day" when the class debated a topic. The teacher had a stopwatch, and the students had to talk more than the teacher.
4. Humor and energy were always important. One teacher started out every class with a joke, eye opener, or ice breaker. If a student had an idea, the student was encouraged to perform.
5. Hands-on experience was always a great tool. Any time a beneficial field trip was available that applied to the course, the class would attend and write a paper on what was learned.
6. The most effective teachers realized that the FFA was vital to teaching, so they used FFA as a motivating tool. Top performers in class were selected to compete for FFA teams. Although FFA's purpose is not to substitute class time, it can motivate and serve as a class tool.
7. Competition between classes generated excitement. One teacher posted the class averages on tests for each class. The class with the highest grade average at the end of the semester received a pizza party.

*Peer teaching has been found to be an effective teaching method.*



*Oftentimes, effective teachers are rewarded through individual recognition.*

8. One teacher realized that exchange programs were excellent teaching tools. Every summer the teacher took the top five students across the country for four days to witness diverse types of agriculture.
9. Hosting international students also stressed international fundamentals in agriculture. Some schools hosted groups every year.
10. The most effective teachers realized that recruitment was the only way to attract students. By speaking with elementary and middle schools, students could be influenced early. One elementary school allowed me to present a school assembly. The assembly helped to create an awareness and understanding of agriculture.

## School and Staff Inclusion

Although teaching primarily occurs in the classroom, the best teachers take teaching a step farther. The most effective teachers also try to educate the school and staff about agricultural education in such a way that the students learn, too. Including the school and staff in teaching creates a win-win situation for all.

1. Whenever a possible learning field trip would arise and needed approval from the principal, one teacher would have a student visit and explain to the principal why the trip would be valuable.
2. If the FFA needed money for a special project or event, the students would approach the school board. That way the board was educated and the students gained experience.
3. One school invited a different teacher every year to attend the National FFA Convention. The results and interest were incredible, as enthusiasm and excitement for agriculture spread throughout the school. →





4. Winning speakers and judging teams performed at faculty meetings. The winners would explain what they did and how competing was beneficial.
5. The chapter officers invited the principal over for a dinner at the advisor's house and shared with the principal the chapter goals for the upcoming year.
6. Students created a newsletter on FFA and classroom activities and distributed it to teachers.
7. FFA Week was promoted by publicizing events. The FFA served breakfast for the faculty, sponsored dances and hayrides, put up posters, and displayed an official dress day. In all successful FFA Week activities, the teacher was excited about communication and group participation.

## Community Awareness

The final phase of communication is one that is too often left out. There must be accurate dealings with the community. This area of communication may be tough in urban areas, but agricultural education is just as important there as anywhere. Many times stereotypes promote the idea that agricultural education is pointless, and these stereotypes must be eliminated. Again, some of the most effective communication tools occur with the students. Creating community awareness educates the public and creates a learning atmosphere for the student. Consider the following:

1. Have bankers, community leaders, and agricultural leaders from the community speak to the classes. The guest speakers add valuable insight and a fresh prospective.
2. Offer evening classes for the public in woodworking, metalworking, and horticulture. Encourage top students to assist and even teach.
3. Develop a working relationship with the media. Have radio and newspaper coverage at big events.
4. Use Young Farmer and Alumni organizations fully, if they exist. The affiliate organizations can work to educate the community, as well as coach judging teams and serve on program of activities committees.
5. Many successful teachers were active with civic clubs and church organizations. The successful teachers utilized the community organization connections for getting students to speak at meetings and to share hot agricultural topics.
6. Get parents involved in field trips and recreational events. Bonds are stronger when parents take action.
7. Participate in BOAC projects and perform fundraisers that can attract media attention.

## Evidence of Success

This year, one of my greatest highlights occurred in Chino Valley, Arizona! After breakfasting with the agriculture teacher at a local cafe, I was greeted by several policemen. The policemen showed me to the car and gave me an official escort to the high school with lights and sirens. When the car pulled into the driveway, I noticed the entire FFA chapter in official dress standing by the entrance cheering. The administrative team and chapter officers waited by the door. When I stepped out of the car, the crowd began to sing and cheer.

After my visit with the principal, the principal escorted me throughout the school with the red carpet laid before me. The students were attentive and alert as I made a presentation to the group. Music, refreshments, and an hour of photos followed.

This situation may seem unrealistic in many schools, however, it did happen. The reception simply illustrates key communication with the students, the school, and the community. The success at Chino Valley stems from Mr. Morgan, the teacher, someone who combines teaching techniques at all levels.

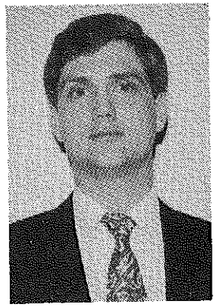
## Summary

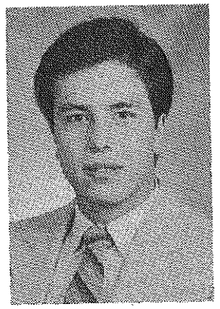
The ideas I have shared in this article are all actual events that I experienced as a national officer. I was very fortunate to witness so many ideas, and I consider myself lucky to come from a top notch agriculture program in high school. The events have inspired me to work even harder as a college student, so that I can join the realm of educating our society about agriculture.

I have learned that teaching is such a vital occupation. I respect teachers so much because I have seen just a bit of what teachers experience. The hours seem unbearable, and the recognition is never what is deserved. From a student's perspective, however, I can say the teacher's efforts do make a difference. I have talked with hundreds of students this year alone who not only taught in the classroom, but also truly expressed a desire to help.

The reward of any agriculture program begins with a highly motivated individual ready to make a difference. The individual is that million dollar quarterback who sets the tempo and creates enthusiasm. The teacher is the key communicator who educates on all levels at all times and makes the extra effort needed for the success of the program. Educating students, school, staff, and community individuals through communication is the quality that characterizes winning teachers. When that quality happens, the total team is guided to the super bowl of success! ■

# Enhancing Student Learning Through Teacher Behaviors





By Bryan L. Garton, Greg Miller, and Robert M. Torres

*Garton, Miller, and Torres are graduate students in agricultural education at The Ohio State University.*

Agriculture teachers are considered to be among the best teachers in the public schools. How did agriculture teachers attain such a lofty status? No doubt, much of the success can be attributed to the use of sound instructional practices. How can agriculture teachers retain this prestige and even improve upon an already successful reputation? Teachers should reflect upon the teaching and learning that occurs in classrooms and consider ways in which teaching can be improved. As a basis for improving teaching, teachers must possess knowledge with regard to teaching behaviors that have a positive influence on the achievement of students.

In an effort to exert a positive influence, teachers of agriculture should become acquainted with effective teacher behaviors that have been identified through research. Rosenshine and Furst (1971) reviewed 50 studies and identified eleven teacher behaviors that were associated with student achievement. The teaching behaviors identified by Rosenshine and Furst (1971) are quite general and should be effective across all subject matter and curriculums.

## Rosenshine and Furst Variables

Of the 11 Rosenshine and Furst teacher behaviors, five were identified that provided the greatest opportunity to influence student achievement. The five teacher behaviors showing the most promise were: clarity, variability, enthusiasm, task-oriented and/or businesslike behaviors, and student opportunity to learn criterion material. The five teacher behaviors identified were deemed most promising because they were found to have a greater association with student achievement than the remaining six Rosenshine and Furst teacher behaviors.

The six teacher behaviors that had a lesser impact on student achievement were: use of student ideas and general indirectness, criticism (less is better), use of structuring comments, types of questions, probing, and the level of difficulty of instruction. At first glance the list of Rosenshine and Furst teacher behaviors seems trite. However, their use in effective teaching has been strongly supported by research.

***How would you describe teachers who have clarity, variety, and enthusiasm in their teaching?***

How can teachers of agriculture incorporate the knowledge of effective teacher behaviors into the classroom, laboratory, and other teaching situations? First, teachers must possess a working knowledge of the teaching behaviors that can improve student achievement. Secondly, teachers should reflect upon their teaching situations to determine the most appropriate teaching behaviors that can be utilized to improve their teaching. How would you describe teachers who have clarity, variety, and enthusiasm in their teaching? How can teachers be task-oriented and/or businesslike and provide students with the opportunity to learn criterion material?

## Incorporating Effective Teaching Behaviors

### Clarity

What does it mean to have clarity in teaching? Newcomb, McCracken, and Warmbrod (1986, p. 29) stated that teachers who "explain and demonstrate concepts in a manner that can be understood by students, make points easy to understand, and answer questions in an intelligent and complete manner" have clarity in teaching. What skills and techniques can teachers utilize to add clarity to their teaching?

To achieve clarity, teachers should ensure that the subject matter to be taught possess organization and structure. Students should be able to identify the purpose and direction of the lesson and the desired outcomes to be learned. The subject matter should be communicated in such a manner that students can see the relationship between the various instructional topics or units. Teachers who possess clarity phrase questions to students in a manner that allows them to respond without additional information or probing. →



Using fewer ambiguous words and phases such as "some," "many," "of course," and "a little" (Rosenshine & Furst, 1971) can increase the clarity of instruction. Additionally, Bush, Kennedy, and Cruickshank (1977) reported that teachers' clarity pertained to using ample illustrations during the process of explaining ideas and directions.

***In addition to using a variety of teaching methods, it is suggested that teachers vary the cognitive level of instruction.***

### Variability

Frequently, teachers limit their strategy to only a few methods, techniques, and/or materials. When planning for instruction, teachers should incorporate a variety of teaching methods and techniques. When appropriate, instructional materials in the form of written, audio, and visual should be utilized in the teaching-learning process. It is further suggested that teachers increase variability in teaching within class periods to ensure the attention and interest of students throughout the class. Several teaching methods should be incorporated into a single period. Dividing tasks and assignments into smaller segments will also increase the variability of the lesson. In addition to using a variety of teaching methods, it is suggested that teachers vary the cognitive level of instruction. Teachers should vary instruction to incorporate the levels of cognition into student questioning and evaluation. Questioning techniques and student evaluations should reflect the six hierarchial levels of cognition, which include knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1956).

### Enthusiasm

Find students who are motivated to learn and you will most likely find teachers that possess enthusiasm for teaching. "The enthusiasm of the teacher is an attribute that is considered to be a major factor contributing to the motivation of students" (Newcomb, McCracken, & Warmbrod, 1986, p. 31), resulting in higher student achievement (Rosenshine & Furst, 1971).

Enthusiasm is contagious. Teachers with enthusiasm create student interest in learning. Enthusiastic teachers create an interest in the subject to be learned and are able to demonstrate enthusiasm through physical movements, body gestures, voice inflections, and by using actual objects and specimens to attract student interest and involvement in the teaching-learning process (Newcomb, McCracken, & Warmbrod, 1986).

### Task-Oriented and/or Businesslike Behaviors

The extent to which teaching-learning activities are structured, organized, and guided is a function of the teacher's task-oriented and/or businesslike behaviors. Rosenshine and Furst (1971) reported that teachers characterized by task-oriented behavior were more concerned with student learning rather than students enjoying themselves. Additionally, teachers possessing task-oriented and businesslike behaviors were described by students as encouraging the class to work hard and be creative in class assignments.

In being task-oriented and businesslike, teachers ensure that students are provided directions and are guided through the teaching-learning process. Students should know the direction and performance expectations of the unit or lesson. Teachers demonstrating task-orientated and businesslike behaviors skillfully and efficiently select and use appropriate teaching methods and techniques in delivering the curriculum material.

***Find students who are motivated to learn and you will most likely find teachers that possess enthusiasm for teaching.***

Teachers possessing businesslike behaviors supervise student activities and direct the application of knowledge and skills in a learning environment conducive for all students. Teachers with businesslike behaviors ensure safety, cleanliness, and organization in laboratories. Additionally, students working in laboratories should be provided with assignments, tasks, and/or projects to complete.

### Student Opportunity to Learn Criterion Material

The fifth teacher behavior is the extent to which teachers provide opportunities for students to learn the curriculum material as prescribed by performance objectives and included on students' evaluations. Acheson and Gall (1992) describe the student opportunity to learn criterion material as the teacher's ability to focus on the various kinds of learning as measured by achievement tests.

Teachers should utilize performance objectives to define the criterion material to be learned. Additionally, teachers should communicate to students the performance

*(Continued on page 19)*

# Teaching Effectiveness: A Principal's View

By CONSTANCE LARSEN

*Ms. Larsen is principal at Bon Homme High School, Tyndall, South Dakota.*

Today's agriculture teacher faces a vast array of challenges in the classroom of the nineties. Consequently, the supervisor of the agriculture teacher has a very demanding job in determining the teacher's effectiveness and finding appropriate suggestions for improving instruction. While some necessary skills, such as ethical behavior, organization, and interpersonal relationships are assessed in very much the same way in all classrooms, other skills must be considered in a very different manner in an agriculture classroom. Furthermore, some aspects of teaching take on a greater significance in the agriculture classroom than in other classrooms. These include subject matter content, variety of teaching methods, linkage with real life examples, classroom control, and student motivation. Each aspect will be discussed in more detail.

## Subject Matter

First and basic to all instruction, is knowledge of the subject matter. A degree in agriculture today is just the beginning. Since most supervisors have little, if any, background in agriculture, the effectiveness of teachers with regard to their knowledge must often be determined by indirect observations. The agriculture teacher must be willing to find the time to read the literature and attend workshops to stay current with new experiments, chemicals, and methods. Furthermore, the agriculture teacher must realize the importance of establishing contacts with local agricultural interests to maintain a practical basis for teaching. To complicate matters, technology in both agriculture and the classroom is growing by leaps and bounds, requiring the agriculture teacher to spend even more time outside the school day in order to be able to adequately prepare the student for the technology of today. Only through observing these behaviors can a supervisor make constructive comments on the teacher's effectiveness in the area of subject matter content.

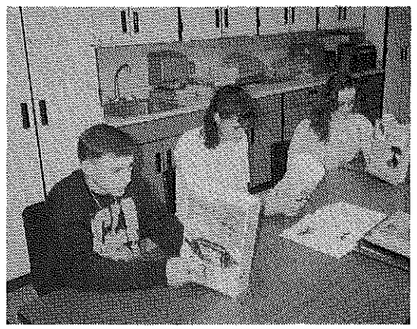
## Variety of Teaching Methods

Agriculture teachers must also be able to adapt their teaching methods to an unusually wide range of abilities and vastly different backgrounds. While all students in an agriculture classroom may have a common interest in agriculture, they do not often have common ability levels, nor do most have common academic preparations. Both math and science are integral parts of agriculture classes, but students with extremely diverse exposure to math and science enroll in agriculture. Agriculture teachers must be able to bridge any gaps to ensure that all students reach their maximum potential and grasp the concepts being taught.

The teacher must be able to determine if each student is comprehending the lesson being taught. This means constant interaction between teacher and student. Throughout the class period, the teacher should be assessing the student's grasp of the concepts. All the students must be involved in what is happening in the classroom. Each student should be participating at his/her greatest ability level, and each should seem focused on what is being learned. There should be thought-provoking questions from the teacher and answers revealing some depth of understanding from the students.

## Real Life Examples

Another vital component to teacher effectiveness is the agriculture teacher's ability to link classroom learning with real-life



*Animal science and food science students examining labels to compare nutritional values.* →



*Horticulture students watering flats of tomatoes, peppers, and radishes.*

experiences. Students must see the relevance of the subject matter to their future lives. Agriculture students need to realize the extensive involvement of agriculture and the environment. While the environment should certainly be an issue whenever possible in any classroom, it is a natural in the agriculture classroom.

The teacher must be creative in finding ways to expose the students to and then use these experiences to reinforce the concepts being developed in the classroom. Here again, student participation is a good indicator of a teacher's effectiveness. Are the students asking questions or forming conclusions that show they are making the connection between classroom and life? Follow-up surveys of graduates can also point out strengths or weaknesses in linking the classroom experiences to real life.

## Classroom Control

Classroom control is another area that certainly impacts on teaching effectiveness. Classroom control in any agriculture classroom is considerably different from most other types of classrooms. There needs to be greater activity, movement, and student interaction in agriculture classes than in most other classes. The very nature of the subject matter makes a more active classroom necessary. An effective agriculture teacher has a class where the students are absorbed in what is going on in the room and curious about the outcome.

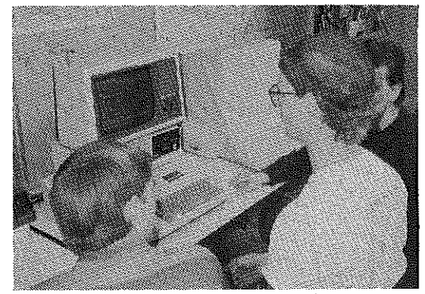
The teacher is both a catalyst that keeps things happening and a monitor that prevents individual student behavior from distracting the group. Safety is always a concern and should be foremost in the teacher's mind when planning and conducting an agriculture class. Most will agree that hands-on activities are one of the best ways to learn, but also one of the most difficult to use constructively. Effective teachers will lay an adequate foundation through lecture and paperwork. They will make ample preparations for safety concerns before any student begins to handle chemicals and/or equipment. The agriculture teacher should also be prepared for unusual or unexpected results that may occur.

## Student Motivation

Perhaps the most crucial element to a successful agriculture program is the teacher's ability to motivate the students. An effective teacher will arouse interest and curiosity and spur the students on to further their knowledge of agriculture. The students will be interested in what is going on in class, wondering about the outcome of an experiment, bringing in outside information, putting in extra time in the lab, and actually being excited by the results of their efforts. The motivated students are the ones who register for agriculture class next semester and also encourage their friends to do so. With the increasing number of courses being required by state departments of education for graduation, there often is little time left for electives such as agriculture. Unless an agriculture teacher is effective in the area of motivation, the agriculture program will disappear due to the lack of students.

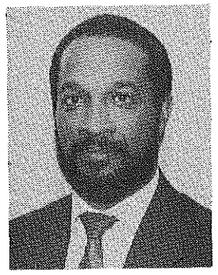
## Summary

Today's agriculture teachers indeed face many challenges, but none greater than keeping the program alive and well. One of the major requisites for keeping the program alive and well is effective teaching. From a high school principal's viewpoint, an effective agriculture teacher must have knowledge of the subject matter, be up-to-date in technology, use a variety of teaching methods, use real life examples, have classroom control, and motivate the students.



*Ag Electrification review on the computer.* ■

# Evaluation of Effective Teaching



By FREDDIE SCOTT

*Dr. Scott is assistant professor of agricultural education at the University of Arkansas, Fayetteville.*

Evaluating teacher effectiveness is not easy, nor is it an exact science. Consequently, studies of teacher effectiveness often result in conclusions that are somewhat vague. Evaluation is done with hundreds of instruments possessing varying degrees of validity and reliability. The crudeness of procedures for evaluating teacher effectiveness is illustrated by the fact that neither incompetence nor effectiveness can be substantiated accurately enough to be used to any extent as a basis for penalizing or rewarding teachers.

The striking elements that contribute to a positive teaching-learning environment are professionalism, preparing the students to learn, using clarity in the teaching, immediate feedback, holding students' attention, asking questions, enthusiasm, and motivation.

## Professionalism

First, the teacher is professional. The teacher is prepared and in the room before the class arrives. When the students arrive, the teacher shows interest in each individual student; the teacher is warm and caring. The teacher seems genuine and enjoys what is transpiring within the classroom. The teaching techniques become a part of the teacher's personality. Additionally, the teacher is competent and capable of aiding the students to clearly understand the points of the lesson. During the day as different students arrive, the teacher's rapport with the students must be noticed. Is there mutual respect?

## Preparing Students to Learn

Effective teachers bring all learners to the appropriate level of anticipation before starting the lesson. The level of anticipation is called SET. To establish SET, teachers relate learning to past, present, or future experience, involve the learner, and communicate a statement of learning.

## Clarity in Teaching

Effective teachers provide students with expectations. The effective teacher uses a variety of teaching materials. As a result, the teacher should repeat and stress directions and difficult points, demonstrate, and provide practice. Effective teachers also adjust their teaching to the learners, provide illustrations and examples, communicate so that students can understand, and cause students to organize materials in a meaningful way.

## Providing Immediate Feedback

Students need to know how well they are doing and what they need to change for improvement. When teachers are effective, they provide immediate reinforcement. Reinforcement lets the learners know that their thinking or behavior is either correct or incorrect. In providing reinforcement teachers should be considerate. The degree of warmth, caring, and humanity that teachers convey is usually based on their liking for students. Teachers should also be willing to accept constructive criticism and suggestions, especially from students.

## Holding Students' Attention

Teachers should keep students on the topic and not allow them to change the direction of the lesson. When teachers direct the lesson, students stay in contact with the topic during the entire lesson. Teachers should be direct and in control of classroom events, in contrast to their students being in control. Teachers should also be demanding in terms of assignments, expectations, tests, and material learned.

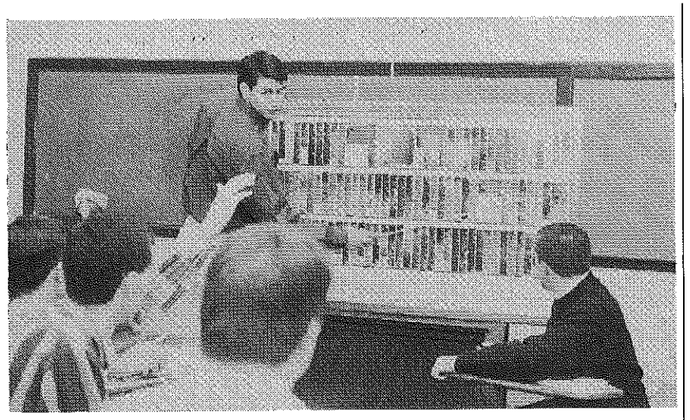
## Asking Questions

There are appropriate questioning techniques which greatly enhance learning. In order to provide an appropriate level of challenge, teachers should direct their questions to individual students, calling them by name. By asking questions, not only does it provide for more valuable class time as compared to questioning groups of students, but it also provides an individual student-to-teacher link.

## Enthusiasm and Emotion

Enthusiastic teachers project positive feelings and expectations about teaching and learning. Teachers who exhibit positive attitudes, vigor, and power generate interest and excitement in the classroom. Consequently, the level of involvement of teachers with students reflects the effectiveness of teachers. →





*Teachers can hold student attention with the use of visual aids.*

Teachers are responsible for creating a desire or feeling for learning. Motivation is more than mere interest in a topic or problem area of study; it is an internalized desire to learn based upon a perception of personal relevance and application. Some of the variables of motivation are tension, interest, feeling tone, reward, success, and specific knowledge of results.

**References**

Moore, G. (1976). That terrifying word and effective teaching. **The Agricultural Education Magazine,** 49(6). 138,142.

Cox, D. (1987). A forest or a bunch of trees? — Recognizing effective teaching. **The Agricultural Education Magazine,** 60(3), 13-15.

Newcomb, L.H., McCracken, J.D., Warmbrod, J.R. (1986). **Methods of Teaching Agriculture.** Danville, Illinois: The Interstate Printers and Publishers, Inc.

Tuckman, B.W. (1985). **Evaluating Instructional Programs.** Newton, Massachusetts: Allyn and Bacon, Inc.

Drawbaugh, C.C., and Hull, W.L. (1971). **Agricultural Education Approaches to Learning and Teaching.** Columbus, Ohio: Charles E. Merrill Publishing Company.

## *Teaching Students . . .*

*(Continued from page 6)*

concepts, and see how the subject matter is relevant to their own experience. Additionally, problem solving allows interaction and discussion with students and is very student-centered. All of these traits are characteristics of field-dependent people.

Problem solving also encourages analytical thinking, the hypothesis-testing approach, and student-defined goals and structure. Further characteristics of the problem solving approach to teaching include the application of principles, the use of questions to introduce topics, and the freedom for students to design their own structure for learning—all characteristics of field-independent people.

However, these same characteristics of problem-solving can also be the source of frustration for students, unless the teacher takes steps to modify the approach for differences in learning style. For example, the problem-solving characteristic of having students structure learning situations can be frustrating for field-dependent learners. Therefore, teachers should provide more structure for field-dependent learners in solving problems. Both Witkin et al. (1977) and Ronning, McCurdy, and Ballinger (1984) argued that problem-solving strategies must be modified in ways most appropriate to students' learning styles. Perhaps it is the properties of problem solving which complement field-dependent and field-independent learning and teaching styles, as well as impede them, that have resulted in the decreased use of problem solving in agricultural education.

## Summary

Students are unique in many ways, including the way they learn. Teachers are also unique. However, teachers have the responsibility to reach all students, no matter what the student's learning style. Consequently, teachers must be able to identify their own learning styles, as well as their students' learning styles. Instructors may use informal observations or standardized instruments, such as the GEFT, to identify learning styles. Then teachers must use a variety of instructional and motivational strategies that take into account the learning styles of both field-dependent and field-independent students. By improving the match between the teaching style of the teacher and the learning style of the individual student, there should be a decrease in the number of students who just don't learn.

**References**

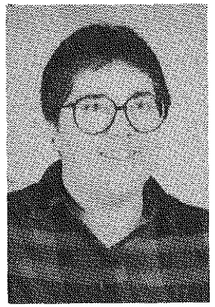
Garger, S., & Guild, P. (1984, February). Learning styles; the crucial differences. **Curriculum Review,** 9-12.

Ronning, R.R., McCurdy, D., and Ballinger, R. (1984). Individual differences: A third component in problem-solving instruction. **Journal of Research in Science Teaching, 21**(1), 71-82.

Witkin, H.A., Moore, C.A., Goodenough, D.R., & Cox, P.W. (1977). Field-dependent and field-independent cognitive styles and their educational implications. **Review of Educational Research, 47**(1), 1-64.

Witkin, H.A., Oltman, P.K., Raskin, E., & Karp, S.A. (1971). **Group embeded figures test manual.** Palo Alto, CA: Consulting Psychologist Press.

# Tools For Measuring Effective Teaching



By LINDA MOODY
and SUSAN FRITZ
*Ms. Moody is an agriculture teacher at East Butler High School in Brainard, Nebraska. Ms. Fritz is coordinator of experiential leadership development at the University of Nebraska, Lincoln.*

Average. Does anybody really want to do just an average job at anything? In this era of "quality is job one," in order for "teaching to be job one," it is critical that the professional educator employ tools for measuring effective teaching.

Why? Measurement is the final component that brings the teaching process full circle. Measurement provides feedback for adjustments in future delivery of course material. Measurement gives closure. The teacher sees the students are out there, they are still awake — they are breathing, but are they learning? Measurement allows teachers to determine if they have really reached their intended destination with the learner. Did the teacher in fact reach the objectives? Was it a near miss? With minor adjustment could there be more success in the future? Is the material being taught too complex, or is it too elementary for the majority of the class?

What tools can be used to determine teaching effectiveness? The tools are as varied as the methods for teaching, and are rightly so. Different teaching methods demand different tools for measurement. There are essentially four tools to determine effectiveness: testing, environment, feedback, and observations.

## Testing

The most common form of measurement, and the most overused, is testing. Generally, testing serves its purpose in determining knowledge acquisition and giving a student a grade in the "gradebook." Unfortunately, most teachers stop there. Teachers don't realize what they have in their hand could become a far more useful tool.

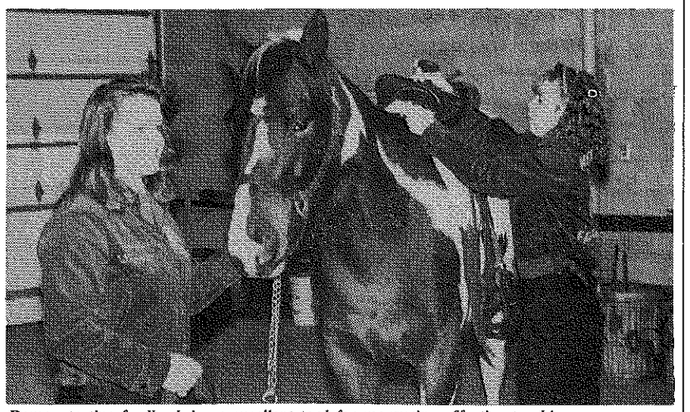
Teacher effectiveness can be measured using class results taken from a properly constructed test (a properly constructed test is used here to mean a test that is developed to measure unit objectives). Are there questions missed by a majority of the class? Was the question bad, or was the objective that it addressed not met? A table that puts students' names down one side and questions grouped by objective across the top of the sheet will allow the teacher to prepare a grid of the percentage each student has received on each objective. The class composite will demonstrate to what degree the entire class met the objective. The teacher's next task is to determine what percentage of meeting objectives is acceptable. Acceptable depends largely on the student population, given the learners' past and potential performance. Below is an example of using a testing grid.

| Name | Objective #1 Questions 1 2 3 | Objective #2 Questions 4 5 6 | Objective #3 Questions 7 8 9 |
|---|---|---|---|
| Miquel | + + + | + + + | + + + |
| Jorge | + + - | + - - | + + + |
| Ayako | - + + | - + + | - + + |
| Soraia | + + + | - - - | + + + |
| Totals | 3/4 4/4 3/4 | 1/4 2/4 1/4 | 3/4 4/4 4/4 |
| | 10/12 = 83% | 4/12 = 33% | 11/12 = 92% |

The grid shows the class percentage on each objective, as well as depicting if the student answered the question correctly or not ("+" equals correct answer and "-" indicates an incorrect answer). After completing the grid, the instructor determines which objectives have been met by the class. Normally, an instructor at the beginning of a unit has stated what the successful completion rate on the test should be.

In the example, 85% or greater was targeted as the percentage of correct responses to successfully pass the unit. Out of the three objectives tested, #3 was the only objective that met the criterion of 85% or greater. Regarding the questions for objective #2, the instructor should determine through questioning techniques if the students understood the questions and the subject matter. If the students did understand the subject matter, the questions may have been poorly written. It is up to the individual teacher to decide whether to reteach and/or retest, based on test scores and class questioning in a post test review session. →





*Demonstrative feedback is an excellent tool for measuring effective teaching.*

Testing is a very concrete method of determining teaching effectiveness, but testing disregards some important factors that are at play in the classroom. One of those factors is the classroom environment.

## Environment

Environmental analysis is looking at attitudes and behaviors. Do students care if they come to class? When students are threatened with detention do they seem relieved, maybe even elated? Do students have a glazed, distant look? Are there fresh woodcarvings on chairs? Are there more tools missing than in the cabinets? If these events are occurring in the classroom and/or laboratory, perhaps effective teaching is not taking place. Behavior is student attitude acted out. If students are not feeling a part of the instruction, they will not wait for the teacher to notice.

One way to include students in the instruction is to use teacher/student planning. The student becomes a partner in the learning process by helping plan experiences. The teacher approaches the class with a topic. Teachers can assume that some students will have more experience on the topic than others. In order to make the learning experience interesting for all, students are asked to contribute ideas that the teacher molds into learning objectives. Teacher/student planning becomes a win/win learning experience with motivation encouraged through partnership. CAUTION! The teacher must be prepared to share control of the class in this participatory learning.

## Feedback

Sharing, an interesting idea. That is what feedback, another tool for measuring effective teaching, is all about. Feedback is shared between teacher and student. A subjective way of measuring effective teaching is the ability of students to analyze, synthesize, evaluate, and perform learning objectives. Performing learning objectives can be done through questioning, discussion, and student competency demonstration. Feedback can be both oral and demonstrative.

Oral feedback can be a gut reaction to the amount of student/teacher interaction during the lesson, ot it can be evidenced through the use of video or audiotape. Videotaping can interrupt the classroom, but if regularly used it can be nonthreatening and invlauable, much the same as the audiotape.

Scenes to analyze from these tapes are: the variety of teaching and student activity; the amount, level, and dispersion of questions; student time-on-task; distracting noises and undirected movement in the classroom and laboratory; and horseplay.

Demonstrative feedback can be measured by student practicums. The practicum consists of the student utilizing concepts and principles taught in class in a simulation. For example, a marketing unit has just been taught. The students are given a simulation dealing with the marketing decisions related to pork. Students are instructed that they have five months before the pork will be ready to physically market. The students are to develop a marketing strategy that will meet the marketing target. Careful analysis of oral and written feedback will indicate the effectiveness of the lesson delivery.

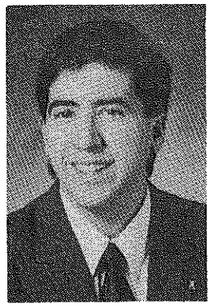
## Observations

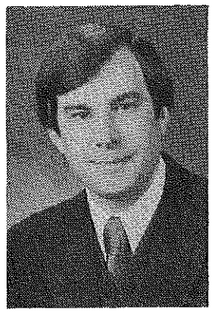
Another tool to measure effective teaching is to move beyond the classroom to peer interaction. Professional teaching implies that educators are always open to change and further development of their craft. Two methods that can be used are observing other teachers and having other teachers observe the agriculture instructor.

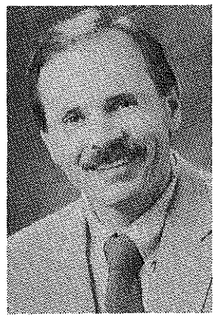
Observing peers may be within agricultural education or outside the discipline. National organizations identify effective teachers. The national recognition of effective teaching is both complimentary and useful. By being so designated, an honoree is given a responsibility to share his/her insights with other teachers. For example, a Nebraska agriculture instructor used a professional day to travel to a neighboring state to observe an agriculture instructor who has been nationally honored by peers. The visit proved to be a rewarding professional development experience.

*(Continued on page 23)*

# Computer Multimedia Modules







By DAVID L. MARRISON, JERRY L. PETERS, and MARTIN J. FRICK

*Mr. Marrison (top) is an agriculture teacher at North Montgomery High School in Crawfordsville, Indiana. Dr. Peters is an associate professor and Dr. Frick (bottom) is an assistant professor of agricultural education at Purdue University.*

Throughout history, technology has introduced advances which have impacted our American way of life. Innovations such as the automobile, television, printing press, and computer have greatly changed our society and the way that our educational system functions. The printing press, for example, made possible the ideals of universal literacy and de-emphasized the teaching of the art of memory (Collins, 1991).

Just as the printing press had a large impact on our educational system, so too has the computer. The use of microcomputers has increased dramatically in schools across the nation during the past decade. In 1981, there were only 31,000 computers being used in secondary schools. This number grew to over 325,000 by 1983 and has doubled every year since (Johnson, 1985).

As computer technology continues to grow, it will be a challenge for agricultural educators to seek out and find situations in which the use of computer applications are beneficial in facilitating learning. A relatively new dimension of microcomputer technology, computer multimedia, possesses the potential to influence students' learning and knowledge acquisition. Computer multimedia is a multifaceted approach to computer-based education that brings together text, graphics, animation, video, still images, audio, and motion video.

Sensing the vast capabilities of multimedia in the educational realm, computer companies have developed computer multimedia software packages that can be used as teaching tools by instructors. Three such computer multimedia authoring programs are MacIntosh's *Hypercard* and IBM's *Linkway* and *Storyboard Live.* Computer multimedia serves as a strong teaching tool since it facilitates more complete use of a student's senses in learning. Computer multimedia instructional materials allow the agriculture student to actually see, hear, and use the content learned. Because computer multimedia software and hardware furnishes students woth these experiences, it has the potential to be applied in a variety of agricultural education settings.

## How Can I Use It In My Classroom

Computer multimedia can be used in the classroom as a supplemental learning tool for students. Basic introductory lessons, such as the history of agriculture, and more complex subjects, like plant and animal physiology, can be taught using computer multimedia modules. These modules can also be used as a valuable substitute in simulating experiments which are potentially dangerous or costly. For example, welding safety could be taught using a computer multimedia system which incorporates video and animation to develop a visual understanding of the dangers of oxyacetylene welding. Allowing the students to visually observe the effects of an oxy-acetylene mishap can instill a greater respect for the equipment they are using.

Computer multimedia can also be used as a mechanism by which students teach other students about an agricultural area. Individual or class projects can be assigned in which the students have the responsibility to inform others, through the use of computer multimedia, about an agricultural issue. This directly benefits agriculture instructors, as they will be able to use their time more effectively, avoiding repetitious delivery of information. In short, this addition to the variance of the delivery system is what makes multimedia so powerful.

## What is Needed?

Computer multimedia systems range in both complexity and cost. For novice computer PC-multimedia developers, the minimum equipment is a 80286/10 MHz microprocessor, 2 Mb of RAM, 30 Mb hard disk, 1.44 Mb floppy drive, VGA graphics adapter, CD-ROM, multimedia authoring program (such as Linkway or Storyboard), and a sound card or audio component. This system is usable; however other sophisticated equipment, such as a digital scanner, may be desired for the development of more elaborate modules. Current costs for the unit described above is approximately $2,500. Similar systems are available for MacIntosh users. →



## But Do Students Learn?

While this new technology may be new and exciting, do students learn? The Department of Defense has been very successful in utilizing this technology. One study of their program's effectiveness showed that when students used a computer multimedia module they learned 38 percent more, while the time needed to teach the subject matter was decreased by 31 percent (cited in Amthor, 1991).

In agricultural education, favorable results have also been found. A study conducted at Purdue University (Marrison, 1992) found that no detrimental effects were present when students were taught the economic concept of demand using computer multimedia as compared to traditional instruction, and learning time was decreased by 32 percent.

## Advantages and Disadvantages of Computer Multimedia

Computer multimedia instruction has the potential to be a valuable asset to agricultural educators. Following are some educational advantages of using computer multimedia:

1. provides a stimulating and novel means of education.
2. provides convenience for students, since they can perform practice laboratory exercises under less regimented time schedules.
3. provides an interactive and consistent instructional format.
4. provides exceptional instructional efficiency for educators.
5. improves instruction and laboratory education.
6. because information is on a computer disk, needed updates to the instructional material can be made almost instantaneously.
7. because of its versatility and ease of development, agricultural educators can develop programs in their speciality area and share with fellow agricultural educators.

As with any new technology, there are some potential drawbacks to computer multimedia instruction. Since computer multimedia is cutting edge technology, its main disadvantage is that of cost. Agricultural educators must also be aware that initially an increased amount of time will be needed to effectively use the computer multimedia software package.

## The Future Is Up To You

At the present time, the agricultural education profession has limited access to computer multimedia modules in agriculture. However, teachers should be challenged to re-tool their computer for this new innovation.

Computer multimedia has the potential to greatly enhance the teaching-learning context. Indeed it will be a challenge for agricultural educators to seek out and find situations in which optimal learning can occur. The benefits of these outcomes could be tremendous. Certainly, if educators can adapt and utilize computer multimedia technology as a new teaching tool, capable of improving students' ability to learn, then all individuals involved in agricultural education will benefit.

### References

Amthor, G.R. (1991, September). Interactive multimedia in education. **IBM Multimedia Magazine,** pp.2-5.

Collins, A. (1991, September). The role of computer technology in restructuring schools. **Phi Delta Kappan,** pp. 28-36.

Johnson, R.T., Johnson, D.W., & Stanne, M.B. (1985). Effects of cooperative, competitive, and individualistic goal structures on computer-assisted instruction. **Journal of Educational Psychology, 77**(6), 688-677.

Marrison, D.L. (1992). **A comparison of computer multimedia instruction versus traditional instruction in post-secondary education.** Unpublished master's thesis, Purdue University, West Lafayette, Indiana. ■

## Enhancing Student Learning. . .

*(Continued from Page 11)*

objectives. It is this criterion that should guide the teaching-learning process and subsequently be used to evaluate the students' performance. It is not implied that teachers "teach to the test", rather that the achievement tests and evaluation instruments be reflective of the subject matter taught, hence providing students the opportunity to learn the criterion material.

## Summary

Teachers of agriculture should be challenged to examine their own teaching behaviors and develop strategies to utilize the five teaching behaviors. Regardless of the approach, improvement of teaching will ultimately benefit students. What could be more important than working towards the improvement of student achievement?

### References

Acheson, K.A., & Gall, M.D. (1992). **Techniques in the clinical supervision of teachers** (3rd ed.). White Plains, NY: Longman.

Bloom, B.S. (Ed.) (1956). **Taxonomy of educational objectives: The classification of educational goals; Handbook 1; cognitice domain.** White Plains, NY: Longman.

Bush, A.J. Kennedy, J.J., & Cruickshank, D.R. (1977). An empirical investigation of teacher clarity. **Journal of teacher education, 28**(2), pp. 53-58.

Newcomb, L.H., McCracken, J.D., & Warmbrod, J.R. (1986). **Methods of teaching agriculture.** Danville, Il: Interstate.

Rosenshine, B., & Furst, N. (1971). Research on teacher performance criteria. In B.O. Smith (Ed.), **Research in teacher education,** pp. 27-72. Englewood Cliffs, NJ: Prentice Hall. ■

# Is The Message Garbled?

By J. GORDON BIDNER, NOLA GRAMM, and THOMAS R. STITT

*Mr. Bidner is president of Vista Management Services, Inc., Carlock, IL. Ms. Gramm is an associate director in the Governmental Affairs Division of the Illinois Farm Bureau, Bloomington. Dr. Stitt is professor of agricultural education at Southern Illinois University, Carbondale.*

It was at an executive meeting of the Illinois Committee for Agricultural Education (ICAE) this past spring. Discussions centered on the continuing process of enriching the agriculture curriculum, seeking to meet the needs of both graduates and business and industry. The major thrust of the discussion was to determine how we could interest and attract a greater market share of students at the secondary level. Although it was not listed as an agenda item, it was understood that we were also intent on recruiting higher quality students — a consistent message promoted by agriculture's businesses and industry. To this point, the discussion was not much different from the many other sessions that teachers and leaders in agricultural education have had repeatedly over the last decade.

Suddenly, a different concept emerged from the discussion. The comment was casual but to the point. It was made by a member of ICAE, a friend of agricultural education to be sure, but not a teacher or a graduate of the program. The following is a paraphrased quote, "I read in the paper where a local agriculture program won a dairy judging contest. To my knowledge there are only three dairy herds in our area. Why would anyone want to put their children in a class that taught dairy judging?" The inflection was rhetorical. Almost in unison two former secondary teachers offered to provide a rationale, again paraphrased:

"You may be correct in the limited number of dairy operations in your school district. However, it is unlikely that the teachers who include this in the curriculum believe that the team members will be dairy judges. They undoubtedly know that the students will not likely become dairy farmers or be in the milk production business. The teacher is using the dairy judging activity to teach skills of comparison, contrast, recognition, differentiation, and decision making/problem solving. It could be called multiple discriminating. When oral and/or written reasons are required, then the teacher is causing the student to list, record, repeat, reproduce, and enumerate. This is called verbal chaining. Both are transferable to any business or industry in which a student would pursue a career. Dairy judging or any other kind of judging contest participation is only a tool to teach transferable skills."

The response from the framer of the rhetorical question was best described as surprise, and maybe even shock. In response, the committee member indicated reading contest results in the paper for years and never realizing the thinking skills gained through judging contest participation. Rather it seemed to be another example of unwillingness to change.

***To my knowledge there are only three dairy herds in our area. Why would anyone want to put their children in a class that taught dairy judging?"***

At this point in the conversation the surprise — no shock — was on the faces of the former secondary teachers. We *assumed* that everyone understood the transferability of the many skills taught in agricultural education.

The next question was not rhetorical. Why have you not assisted, yes *taught* teachers to tell the public what they teach? We in the business of agricultural education often speak in a kind of a cryptic shorthand. We may not say what we mean about what we teach. If we in actuality are teaching dairy judging only to make dairy judges, we need to review what and why we teach! If a student learns to choose, compare, contrast and couple; if they can decide, differentiate, distinguish, recognize, select, and justify; they have the transferable skills of multiple discriminating. If students learned and practiced these skills only on dairy animals or in grain judging, they are of little consequence. The same is true with verbal chaining. Verbal changing includes to cite, copy, enumerate, list, quote, recite, record, reiterate, repeat, reproduce, restate, and transcribe. Does it really make any difference if the student practices these skills on dairy animals? Probably not, but it will if we do not or are not successful in getting the real message out on what we are teaching.

We could compare agricultural education to many other subjects, but math provides an easy illustration. The math problem is related to how many hours it will take to travel to Mars. Although there is →



no proof, it appears the probability of developing a dairy judge is greater than sending a passenger to Mars. The point is, that the math teacher puts the emphasis on the teaching of transferable math principles and the public understands.

***To each other we are clearly communicating. To the public we have sent a misunderstood message. If we tell the public we teach judging to make dairy judges only, we have indeed sent the wrong message.***

One would wonder about our cryptic shorthand. If it is understood within the profession, are we in fact our own worst enemy? The question then is, in what other areas are we unintentionally misleading the public?

To repair a small engine the student probably will use problem-solving skills. These skills include to adapt, adjust, analyze, correlate, develop, diagnose, discover, think through, and troubleshoot. These problem-solving skills are in demand in every career opportunity for our graduates. Applicants for any number of individual awards might need to calculate, calibrate, compile, compute, define, or diagram. They might also need to equate, estimate, explain, figure, illustrate, plan, organize, schedule or solve. A participant in an agricultural mechanics contest might have to use the transferable motor chaining skills of adjusting, aligning, closing, and assembling. Others might disassemble, draw, measure, operate or replace.

The 16 basic skills employees need for the year 2000 as outlined by the American Society for Training and Development include:

**Knowing how to learn**
**Reading**
**Writing**
**Mathematics**
**Oral communications**
**Listening**
**Problem solving**
**Creative thinking**
**Self-esteem**
**Motivation/goal setting**
**Personal and career development**
**Interpersonal skills**
**Negotiation**
**Teamwork**
**Organizational effectiveness**
**Leadership**

Ask agriculture teachers who provide quality programs if they teach any of the basic skills listed. They would unequivocally answer yes. In fact, the best would say they teach them all. However, when the article appears in the paper it probably reads: *Parliamentary Procedure Team Places 3rd*, etc. Maybe it should read: "While demonstrating the skills of leadership, teamwork and practicing creative thinking, the students placed third in the parliamentary procedure contest. These skills are transferable to any career choice, and were taught in the second year of the agriculture program. Participation and successful involvement enhanced the self-esteem and employability of each team member."

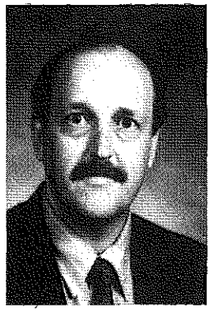
Within the discipline of agricultural education, it has been common knowledge that our graduates are readily employable. One oftentimes hears words like "work ethics" or "common sense" to account for the demand. Perhaps it is time to reevaluate what we really teach. Are these transferable and high demand basic skills really being taught? If they are, then we need to inform students, prospective students, parents, parents of future students, and peer teachers. Then a clear message needs to be sent to administrators, board members, members of the agricultural community, and business and industry. We need to share the message with those who are demanding basic skills in the workplace. We need to tell them that we are in the business of meeting their needs, and we know how to do it! We have a proven track record. We have been doing it for a long time. BUT, we must avoid the cryptic language that we use to communicate. We must use understandable language that distinguishes our present-day, diverse, and innovative programs from those of the past. ■

**Coming in October . . .**

Theme: Teaching the Science of Agriculture
- linking agriculture and science
- teaching animal science
- industry perspectives
- scientific literacy

Plus feature columns on *classroom techniques* and *Aquaculture.*

# Incorporating Hunter Safety Programs Into The Secondary Curriculum



By BLAIR E. LYBBERT and WILLIAM POLSTER

*Mr. Lybbert is an administrator at Burleson High School, Burleson, Texas. Mr. Polster is director of agriculture for the Burleson Independent School District.*

Every December President George Bush returns to Texas to engage in bird hunting with old friends; he is joined annually by some 15 million or more Americans that enjoy a wide range of hunting activities. And yet, the time-honored tradition of hunting is coming under increasing criticism across the nation.

Several factors have converged to create concern within the hunting community. First, the anti-hunting viewpoint is becoming popularized as a social issue, or cause. The "politically correct" attitude is to disdain hunting and hunters. Numerous animal rights groups, such as People for the Ethical Treatment of Animals, have organized in various attempts to promote anti-hunting legislation, to seek judicial remedies that would ban or restrict hunting, and even to physically interfere with lawful hunting activities. Secondly, the demographic trend is toward fewer hunters, as many current hunters are members of an aging population group. Moreover, growth in the sport is inhibited by high costs for guns, equipment, and leases; increased urbanization of rural areas; and the continued decline of the traditional family structure. And lastly, hunters themselves foster negative attitudes toward the sport when wanton disregard is shown for the land, game, and people associated with hunting. Clearly, some hunters abuse the resources so critical to the continuation of the sport, damaging both private and public lands. Each new hunting season seems to begin with a newspaper article describing a tragic accident that has cost a human life. Carelessness results in hundreds of injuries and deaths in the field each year.

The battle lines in the hunting controversy appear to be well established. Both sides can claim some measure of success. Animal rights activists have won several legislative and judicial victories. Hunters have seen the passage of laws to prohibit hunter harassment in 44 states. But the real prize is represented in the attitudes held by the majority of Americans on the issue. Professor Stephen Kellert of Yale studied the growing trend of public opposition to hunting. Although more than 80% of Americans supported hunting activities for food consumption, over 60% opposed hunting for sporting or recreational purposes.

In recent years hunter education courses have been developed in all states. They serve the dual purpose of educating hunters while also addressing the public's growing concerns about hunting issues. The Texas program is typical of many that have been implemented in the last decade. In 1988, Texas began a program that would require all hunters born on, or after, September 2, 1971, to be certified in order to obtain a valid hunting license. The Hunter Safety Course included a minimum of 10 hours of classroom instruction, a passing grade of 70% on a standardized test, and a $5.00 fee. A state published manual provides for a prescribed course of study which is taught by a trained instructor. Generally, states honor the hunter safety certificates of other states, thus accommodating out-of-state hunters.

***Indeed, many students take the hunter safety program even though they have no intention of becoming active hunters. These students, too, learn important lessons about wildlife and the outdoors. A better educated hunter and non-hunter is in the best interest of everyone.***

The benefits of hunter education are significant. Those taking the Texas course are taught about wildlife management, sportsmanship and ethics, firearms safety, wilderness first aid and survival, and hunting techniques. Students also learn about the positive role that the hunting tradition has played in the development of our country. Additionally, the student retains the 105 page manual as a valuable source of reference information. The lessons learned in a comprehensive program of hunter education can contribute to the continuation of the sport. In the December 1991 edition of the American Hunter, Ron Spomer observed: →



*Hunters must cultivate themselves and their image, must behave and perform with the highest ethics and honor, and must prove to the non-hunting public year after year that hunting is a natural, acceptable, and responsible interaction of species.*

One innovative approach to extending the benefits of hunter education to young people was developed at Burleson High School (Burleson, Texas). The Texas Hunter Education Program was integrated into the curriculum of the wildlife management course in the agriculture department. The wildlife class is open to any grade level (10 through 12) student. This course is offered each semester and usually attracts about 20 students. As part of the course of study, the instructor teaches the Texas Hunter Education materials and administers the state mandated test. Thus, the students actually become hunter safety certified, while also earning academic credit.

The results have been excellent. Over 99% of the students taking the test have passed, most scoring in the 80s and 90s. Perhaps more importantly, the students acquire a new respect for the hunting tradition. As Todd, a sophomore, put it, "this course has helped me learn about my rights and responsibilities as a hunter, and about other people's rights as citizens." Indeed, many students take the hunter safety program even though they have no intention of becoming active hunters. These students, too, learn important lessons about wildlife and the outdoors. A better educated hunter and non-hunter is in the best interest of everyone.

Prudent management of wildlife resources has resulted in a North American whitetail deer population numbering over 20 million, larger than at any one time in recorded history. Well-informed state park and wildlife agencies, operating with funds generated from taxes and licenses from hunters, have managed and conserved the natural resources of the nation on behalf of all citizens. Combining state hunter education programs with agriculture classes at the secondary level offers the potential to make an important contribution to the future of hunting sports. ■

## Tools for Measuring . . .

*(Continued from page 17)*

Today's agriculture programs are integrating across the curriculum. The integration has challenged agriculture instructors to rely on a variety of teaching methods that traditionally have been more closely related with other subject areas. The demonstrative teaching method is used in science, home consumer science, and music, to name a few. Boiled down to its most basic level, all effective teaching involves learner objectives, activities that address the objectives, and measurement.

Not only should agricultural educators visit other programs and classrooms, but they should also have peers observe them. In order to ask a peer to observe in the classroom, it is important they have demonstrated effective teaching that the agriculture instructor feels merits emulation. Without regard for the peer's effectiveness, it is nearsighted to believe the peer could offer constructive feedback.

Agriculture instructors can also utilize the measurement tools that are available from teacher education institutions. The University of Nebraska — Lincoln, Agricultural Education Department is in its third year of the Master Teacher Program. Master Teachers have been recognized for their effective teaching abilities and are given the opportunity to enhance their teaching skills through professional development activities and observations using the Calssroom Observations Keyed for Effectiveness Research (COKER) instrument.

The COKER instrument was designed to describe classroom behaviors of pupils and teachers. The instrument is administered by a trained observer during instruction. COKER is one of several scientific instruments that can be used to quantify and qualify effective teaching.

### Summary

So is average good enough? Average implies mediocre. Effective teachers are not mediocre. Effective teachers use tools such as testing, environmental analysis, feedback, and observations to measure their effectiveness. Effectiveness requires constant monitoring and accepting the challenge to always look to improve. "Job one" is to be an effective teacher, and effective teachers must be prepared to take risks.

Demonstrative feedback is an excellent tool for measuring effective teaching. Instruction becomes meaningful if students have the opportunity to demonstrate and perform concepts and principles taught in class. Using a variety of questioning skills, teachers are able to determine the level of comprehension students have achieved. By questioning students, teachers can identify misunderstood concepts before testing. Group interaction with peers is an effective way of sharing ideas. Agricultural educators should participate in a variety of professional meetings and conferences to continue their growth. ■

# MY DREAM

By Karleen H. Tanimura*

My dream is inspired by the visions of
Dr. Martin Luther King, Jr., Dr. Brenda Eheart, Cindy Mall
and all other great teachers
from whom we learn to "do" and to love.

I have a dream . . .

I have a dream
that the leaders of our society will recognize and reward
those who bring to life
the craft and artistry
inherent in the teaching profession . . .

I have a dream
that the students of our society will know their teachers
as human beings
capable of love and entitled to imperfection . . .

I have a dream
that the teachers of our society will commit themselves
to constant evolution
as professionals, as educators, as influential individuals in
a changing world . . .

I have a dream
that I will become
an artist
— imperfect, evolving, and influential —
blessed with the privilege of unveiling the beauty
within those whose lives I touch . . .

I have a dream to become a teacher.

*Ms. Tanimura received her B.S. degree in elementary education from the University of Illinois on May 17, 1992. As recipient of the College of Education Alumni Association Medal, she shared her dream to become a teacher with those attending the convocation ceremony.