

# From Agri-science Teacher to Agriscience Facilitator

By Dwayne Pavelock & Doug Ullrich

Lenny\* was by no means an exceptionally gifted student in any of his high school subjects. Sure, he had tremendous skills in the agricultural mechanics laboratory, but even in the classroom portion of agricultural science courses he seemed to struggle. His young agri-science teacher sought methods to keep him interested and involved in the learning process. All he wanted to do was "work in the shop."

Mrs. Lester\*, the geometry teacher, hurried out one day to the agri-science classroom with an aura of excitement about her. She explained to the agri-science teacher that her lesson for the day centered on the concept of determining the length of the hypotenuse, the longest side of a right triangle. Several students failed in their attempt to provide the correct answer to a posed question. Lenny unexpectedly blurted out the correct answer. Mrs. Lester, knowing that Lenny was a weak math student, asked him how he had derived his answer. "It's simple," he replied. "You're building a trailer. We learned about measuring the length of the hypotenuse in Ag. Mech. just the other day when we started building a trailer for the Houston Ag. Mech. Project Show."

Imagine how many times agri-science teachers have told students to cut metal or wood a certain length. By doing so the teacher missed a valuable opportunity to integrate the curriculum with core academic subjects. Most teachers are intent on doing a project right with a vision set on the end result, not the process. Indeed, most see themselves as the agri-science *teacher* that directs

students, not an agri-science *facilitator* that guides them. The immediate objective is to teach a good lesson, regardless of whether real learning occurs.

The traditional school mode of operation includes structured classrooms with desks lined up in rows and classes lasting for a set amount of time. Teachers become accustomed to such structure and adapt it to their teaching practices. We associate such structure to our administrators' cries for students to remain on-task. *Surely, we think, learning can only occur in the type of classroom that requires students to do what the teacher tells them, do it how the teacher tells them, and do it when the teacher tells them.*

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Reform efforts of the last several years have asked teachers to change to a learner- or student-centered classroom. Using the student-centered model of learning encourages teachers to view their students as academic partners who work together to produce relevant and meaningful learning experiences (Boud, 1995).

These efforts have asked teachers to be more of a guide, or facilitator, in the educational process. Prime opportunities exist for agriscience teachers to be a facilitator due to the scientific nature of agriculture. Science involves hypotheses, research and problem-solving. Students are asked to imagine through questions such as "what if" and "how." The highest levels of Bloom's taxonomy are called upon in the learning process, not through statements of fact made by teachers, but through the questions that are asked. Students call upon their own ability to use reason and think abstractly. But they must be given the chance and be properly guided in our classrooms.

Perhaps the first element to being an effective agriscience facilitator is providing an environment conducive to learning. Smith and Lusteran (1979) described a model of learning facilitation that centers on the teacher eliminating conditions that inhibit learning and creating circumstances that promote learning. The model includes:

1. Enhancing positive feelings;
2. Enforcing desired behavior;
3. Modeling desired behavior; and,
4. Promoting cognitive clarification.

Agri-science teachers know about, and constantly incorporate, the model's four aspects *outside the classroom*. They motivate students to get involved and work hard in chapter events and are willing to serve as a parent-figure for students. They congratulate the student who is named high point individual at the district livestock career development

event (CDE) and put the student's name in the local newspaper. When students attend a state or national convention in official dress, the teacher dons professional dress as well to set a good example and project a positive image. And after an event is over, the teacher willingly discusses those things the student has done right and how they can further improve. Agri-science teachers do these things frequently in extracurricular activities, but it is important to remember that a primary purpose of agricultural education calls us to incorporate this model *inside the classroom*, as well, so that true learning occurs.

Educators of all subject areas and education levels know that lecturing is the easiest teaching method to incorporate into the classroom. Lesson planning notwithstanding, lectures allow teachers to readily call on their personal experiences and knowledge in presenting the subject matter to students.

This form of direct instruction can be effective and even allow teachers to be facilitators through the use of the Socratic method of questioning, but other models allow teachers to serve more as facilitators and more directly involve the student in the lesson. Utilizing a few of these models can enhance the learning process and ensure that the various learning styles of students are addressed. A few of the models, as discussed by Joyce and Weil (1996), and their implications for teachers include cooperative learning, role playing, and inquiry training.

### Cooperative Learning

After dividing the class into groups that include students of all learning abilities and styles, the teacher presents a situation to the group. Students formulate individual

responses and discuss these responses within their group. The group then takes on the task of developing possible solutions with attention to predicted outcomes and problems that may occur. The teacher's role is to guide on-task group discussions and reduce distractions. The teacher may also play the role of "devil's advocate" to encourage students to broaden their view of the situation presented.

### Role Playing

As done in cooperative learning, a situation is presented. The different players, or people involved in the situation, are identified and students select the role they will play. Students then act out the scenario according to their chosen role. A follow-up activity then centers on the contribution of each role player. The role of the teacher is to encourage students to understand the viewpoints presented and help them examine all sides of the issue or situation.

### Inquiry Training

Requiring active participation in scientific inquiry, the development of the independent learner is the focus. The general goal is to help students develop the intellectual discipline and skills necessary to raise questions and search out answers stemming from their curiosity. Again, a problem is first presented to the student. The teacher should help students identify hypotheses and procedures, but not tell them how a solution may be determined. Teachers also call attention to invalid points and press students to make clearer statements of theories.

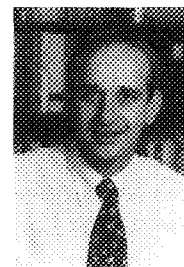
Other models exist, but these are a few that have a common and natural application in agricultural education. The student is the

primary focus and performs the majority of the work. While a teacher may be tempted to resort to elements of their traditional lecture methods and be more directive in the process, it is important to remain a facilitator and allow learning to occur through student exploration. We may like our job as an agri-science teacher, but is being an agricultural science facilitator all that bad?

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*Dwayne Pavelock is an assistant professor and teacher educator in the Department of Agricultural Sciences at Sam Houston State University.*



*Doug Ullrich is an associate professor and head teacher educator in the Department of Agricultural Sciences at Sam Houston State University.*

\* Names have been changed.

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WN: 0324404741013

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