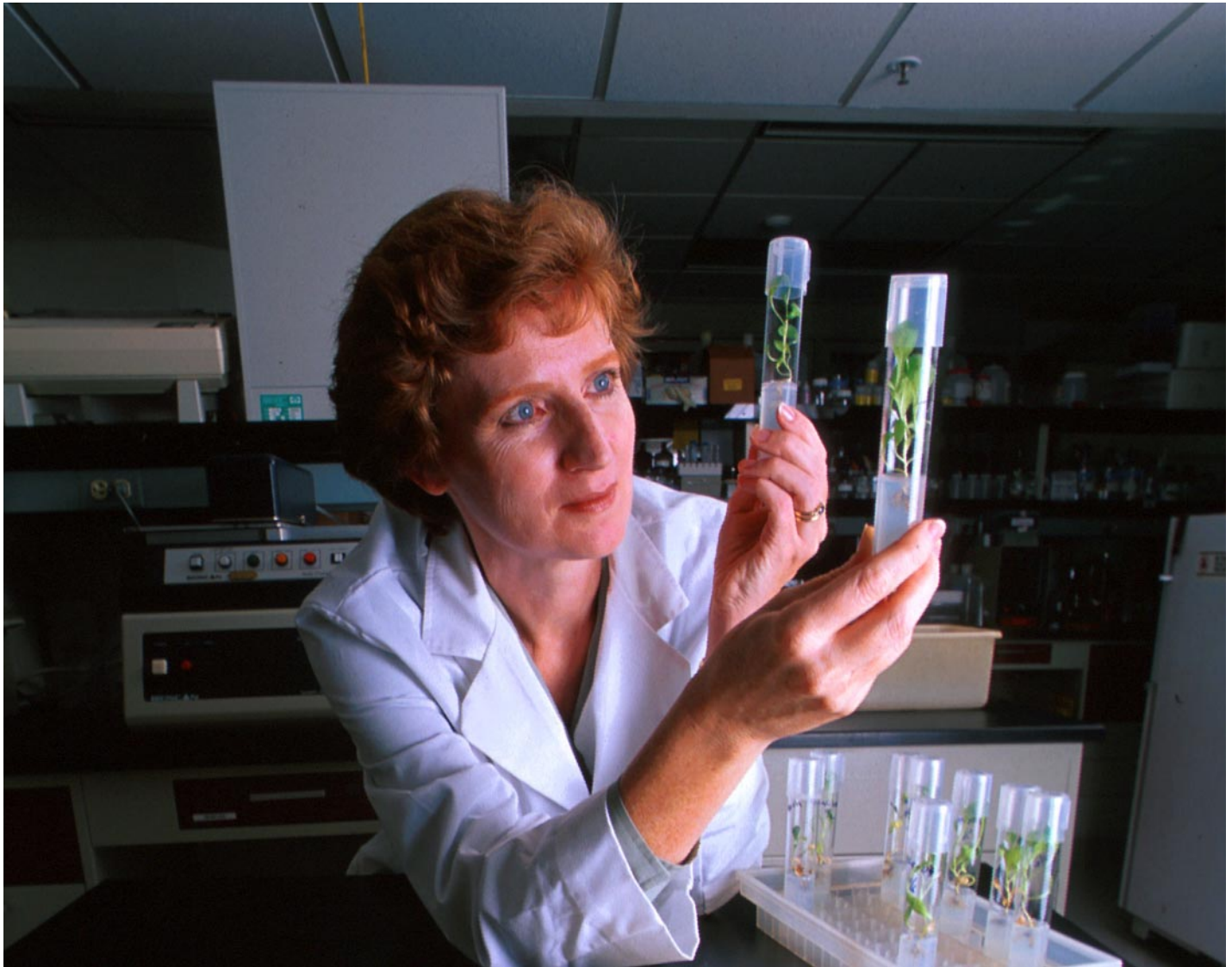


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**THE ASSESSMENT OF
TEACHING AND LEARNING**

Assesment is Not a Dirty Word Afterall!

By *Jamie Cano*

Assessment? YUCK!! The word assessment most often brings about a negative connotation, to both teachers and students. Why is that? Maybe it is because we really don't understand "assessment," or what assessment could really do for your Agricultural Education program. Typically in pre-service programs, professors will spend about 1 ½ hours in total to teach about assessment. In rare instances, there are courses expanding upon the same topics of assessment. Furthermore, if we as teachers are lucky enough, we will attend a workshop here and a workshop there on the topic of assessment, in light of the innovative "assessment reforms" and regressive re-reforms in the United States.

I am frustrated as you can tell. Assessment is not an add-on to teaching and learning; it is integral! Black and Wiliam (1998) presented rather convincing evidence that formative assessment can cause improvement in student learning. Yet, Black and Wiliam (1998) also noted that such practice of formative assessment was rarely used in teaching.

Therefore, without doubt, assessment has a profound effect on student learning. What students learn, and the way they learn it, is driven by how they are going to be assessed. From the perspective of the teacher, you write objectives for the subject you are going to teach, and then you compile the lesson plan detailing the subject content, and then decide upon the most appropriate method of assessment. This approach constructively aligns objectives, lesson plan, and assessment.

Students however, tend to see the situation rather differently than the teacher, in a somewhat reverse order. For example, students are starting your class by asking questions such as: what will I be assessed (tested) on? How will this assessment (test) be conducted? What do I have to do to pass this class with as high a grade as possible? Think about it. How many times have students asked you: is this going to be on the test? From my perspective, it appears as if "what is going to be on the test" is what is driving our assessment....wrong!!

Does how well a student performs on a test "really" tell you how well you did as a teacher? I am often called by first-year teachers who tell me that their class did miserable after a unit test. My first question is this: how well did you teach the unit? It is most often that the teacher is left speechless...for the response is usually this: I guess the students did not study for the test as I know I taught it well. OK, so you taught it well. Where is your evidence? What evidence did you collect to confirm that you taught the lesson well and that the students' learned the content? It is often this very evidence that is missing.

Oh, and by the way, the classroom is just ONE aspect of your program! Are you consistently assessing your TOTAL program to see if indeed the program is meeting the objectives of the local school district?

In conclusion, most teachers often view assessment, both teaching and learning, as something apart from regular teaching, serving primarily the purpose of providing grades or informing, sometimes placating, parents. Assess-

ment as a stepchild is also apparent in teacher education where a "lecture" is given or a course allocated to pre-service teachers on "testing and assessment" propagating traditional notions of assessment, that of teacher made and summative uses of test. The primary objective of assessment is to maximize teachers' information uptake and foster translation of that information into pedagogical action. The goal is to bring about student understanding and conceptual change by providing immediate feedback to students and teachers focused on reducing the gap between the students' current level of knowledge and the place where it ultimately should be.

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Assessment with Eric Clapton

By Anissa Wilhelm

Assessment and Eric Clapton.

What is the connection? You may be reading this thinking, what is she talking about. But something about the word “assessment” reminds me of a song by Eric Clapton. Those of you Clapton fans should be racking your brains right now trying to figure out this one. Do you have it yet? Clapton sings, “It’s in the way that you use it...” I think the same about assessment. It can serve many purposes but it depends on the way that you use it.

The word assessment is a powerful word that conjures up both positive and negative thoughts. On the positive side, assessment means opportunity. It is the opportunity to validate both learning and teaching; the opportunity to show others through valid evidence the accomplishments of both learning and teaching; and the opportunity to determine what might be improved in both learning and teaching. Some of the negative or scarier aspects of assessment include identification of areas of needed improvement in learning and teaching because now you know that much work may need to be done; the accountability issues associated with assessment such as determining the effectiveness of learning and teaching and again perhaps the work that may need to be done; and perhaps not meeting expectations. As with most things worthwhile, we must take the bad with the good as we use the positive aspects of assessment to better our practice.

Assessment is most powerful when used as a learning tool. As teacher educators, we have the oppor-

tunity to model for pre-service teachers the many ways to use assessment. We model the use of multiple measures of assessment such as rubrics, performance assessments, authentic assessments, reflective practice writing assignments, questioning, simulations, and yes, the typical paper pencil test. We also model the timing of use of assessments – using assessment in both formative and summative situations. When I think of assessment, I think

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about helping students, and myself, identify both successes of learning and areas needing improvement. I believe a key to this is certainly the use of reflective practice.

Assessment and planning go hand in hand. Many times when planning lessons and units, assessment is one of the last things addressed. Too often the content and activities take center stage and priority and assessments are created and planned as a result of the content and activities. In this day of accountability assessment must enter the planning process earlier.

Ideally when planning, educators should first identify the standard to be attained through the instruction. Then, learning objectives addressing the standard should be identified. The next step should be to identify the best assessment tools to be used to determine if students have attained the learning objectives and the standard. Once these items have been identified, educators can then create or find appropriate lesson content and activities that will provide students with necessary learning opportunities to allow them to prepare to be successful on the assessments. It is this type of backward design that raises the level of importance of assessment in the learning and teaching process. Because classes are often planned in advance, this can be difficult to model for pre-service teachers. Involvement of learners in the assessment process can be one way to do this.

This issue of *The Agricultural Education Magazine* is dedicated to the assessment of learning and teaching. The authors of the articles address many aspects I mentioned earlier.

Baker provides a diagram outlining an approach to assessment. He also discusses the involvement of learners in the assessment process, as does the articles by Boehm and Elbert,

Feggins and Larke Jr. In addition both provide support for use of a variety of assessment tools to address learning and teaching. Further, Croom and Stair provide useful comments on the use of questioning, especially with the idea of higher level thinking. This article will be a good one to share with pre-service teachers.

Rivera provides an interesting look at a state assessment process that incorporates assessment to include the three major components of an agricultural education program; it is an idea that warrants investigation.

The article by Morris focuses on the idea of using real life situations in assessment. It gets at the heart of the idea that using assessment in this fashion has merit over the typical paper pencil test, especially if we are concerned about developing critical thinking skills rather than simple recall skills. In a similar fashion, the Bryant and Conner article describes how teachers can identify success of an agricultural education program by taking a look at the success of former students. Finally, Ricketts shares teacher input from a needs assessment done in Georgia.

As I write these theme editor comments, the academic year has recently finished and I have spent time reflecting on and assessing my performance as an educator, especially over this past semester. I ask myself, have I done enough to prepare the student teachers who will be going out in fall semester? I sure hope so, but I am also sure I could have done some things better. I am already planning for some new practices and better modeling for next year. Each of us no doubt reflects on our learning and teaching practices and this definitely includes how and why we assess stu-

dents. We investigate and evaluate new ideas for teaching and assessment. It is a good thing I wrote down the ideas I came up with as a result of my self-reflection because summer classes are looming. After this past year, what ideas did you write down upon reflecting on teaching and assessment?



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**Ask
yourself the
question:
Have I done
enough?**

**Assessment in the
Planning Process**

1. Identify the standard
2. Develop learning objectives
3. Create or choose the appropriate assessment(s)
4. Create learning opportunities through choice of content and activities

“Holy Cow! Assessment On-Deck!”

By Andrew J. Baker

The boys of summer are back and the baseball season is in full swing. Every year teams possess dreams of making the post-season and winning the World Series. By the All-Star break, teams and coaches are reassessing their season. About half of the teams begin working on next season, while the other half are trying to earn a spot in post-season play. They may make a trade or two, shuffle the lineup some, or bring somebody up from the minor leagues. Players are constantly being assessed on strengths and weaknesses to determine their role within the team.

For the last two years, I have had the wonderful opportunity to coach little league baseball. As a coach, you are constantly assessing the game to try to earn a win. In little league baseball, success and motivation are earned in small chunks by making a good throw, getting a hit, making a catch, or stealing home. Players regress or progress with every pitch. They begin gaining or losing confidence through their reactions during the game. After every pitch, a coach will assess the player reactions and make adjustments accordingly to help every kid achieve success. Teacher educators must make adjustments as each pre-service teacher progresses through the teacher education program and certification requirements. Most adjustments are made after each assessment has been completed. Remember, each evaluation is just a small chunk or portion of the overall assessment scheme. Remedial work may be assigned, taking an extra course, or resubmission of a teaching portfolio are just a few

adjustments that can be made.

Baseball and assessment go hand-in-hand. Pre-service teachers are continually being assessed on their basic skills, subject knowledge, presentation skills, and classroom management; just as baseball players are evaluated on hitting, pitching, and throwing. Methods of assessment range from standardized testing, disposition assessment, portfolios, lesson plan rubrics, background checks, speech and hearing testing, communication skills, to technology competencies; while baseball players are assessed on slugging percentage, strikeouts, and fielding percentage.

Teacher education utilizes a multitude of assessments to assure that teaching candidates are evaluated at different intervals. All teacher training institutions are assessed through accreditation to continue their education degree programs. However, each institution has the freedom to select

their forms of assessment to assure accountability as well as fitting into the philosophical culture of the institution. The educational unit at my institution agreed upon an assessment paradigm (Figure 1) that resembles a baseball diamond. Each base and pitching mound represents an area of assessment within the teacher education program.

The pitchers mound represents “Application & Reflection”. It is mandatory that each education major is assessed through reflection. My students are required to write a reflection paper for every lesson presentation they conduct. Students reflect upon each aspect of their lesson. They utilize the 13 Principles of Teaching and Learning (Newcomb, McCracken, & Warmbrod, 1993) as an outline to complete this requirement. These principles help guide them through the exercise as they mentally review the classroom events that occurred. Education majors are also required to write reflection statements for each artifact utilized

November - December 2005 Issue

Theme: Learning as a Function of Teaching

This issue will look at the concept of learning as a consequence of effective teaching. The previous issues for 2005 have focused on the teaching aspect of the teaching - learning process. This issue will focus on learning as a function of teaching and would incorporate information on how students learn as a result of how teachers teach.

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in their teaching portfolios. A reflection paper is required for entrance into the teacher education program as well as another reflection paper to exit the program. It is important that each student reflects after they have reached a new or existing base.

Home plate represents “Knowledge of Professional Skills and Dispositions”. A student must first be assessed to see if they possess the professional characteristics and/or dispositions to enter the teaching profession. Education majors are evaluated on six major disposition areas, which include collaboration, honesty/integrity, respect, value of learning, emotional maturity,

and responsibility. Students are evaluated on two occasions. The first occasion is conducted during the first core education course. The second evaluation occurs during their methods course. Professional skills are assessed through teaching portfolios as well as field experiences. Faculty within teacher education programs assume an integral role in this vital stage in assessment. A student must also complete their first background check to ensure integrity and pass a standardized basic skills assessment to advance to the next stage.

First base represents “Knowledge of Learners”. Students are as-

sessed in this area through a standardized test that evaluates their knowledge on Illinois Professional Education Standards. This test evaluates students on their aptitudes on classroom management, diversity issues, professional development, assessment, learning environment, human development, instructional delivery, and collaboration. These same areas are also evaluated and reviewed in their teaching portfolios as well as during their field and clinical experiences.

Second base represents “Knowledge of Teaching”. Pre-service teachers are always advancing towards comprehension in content knowledge

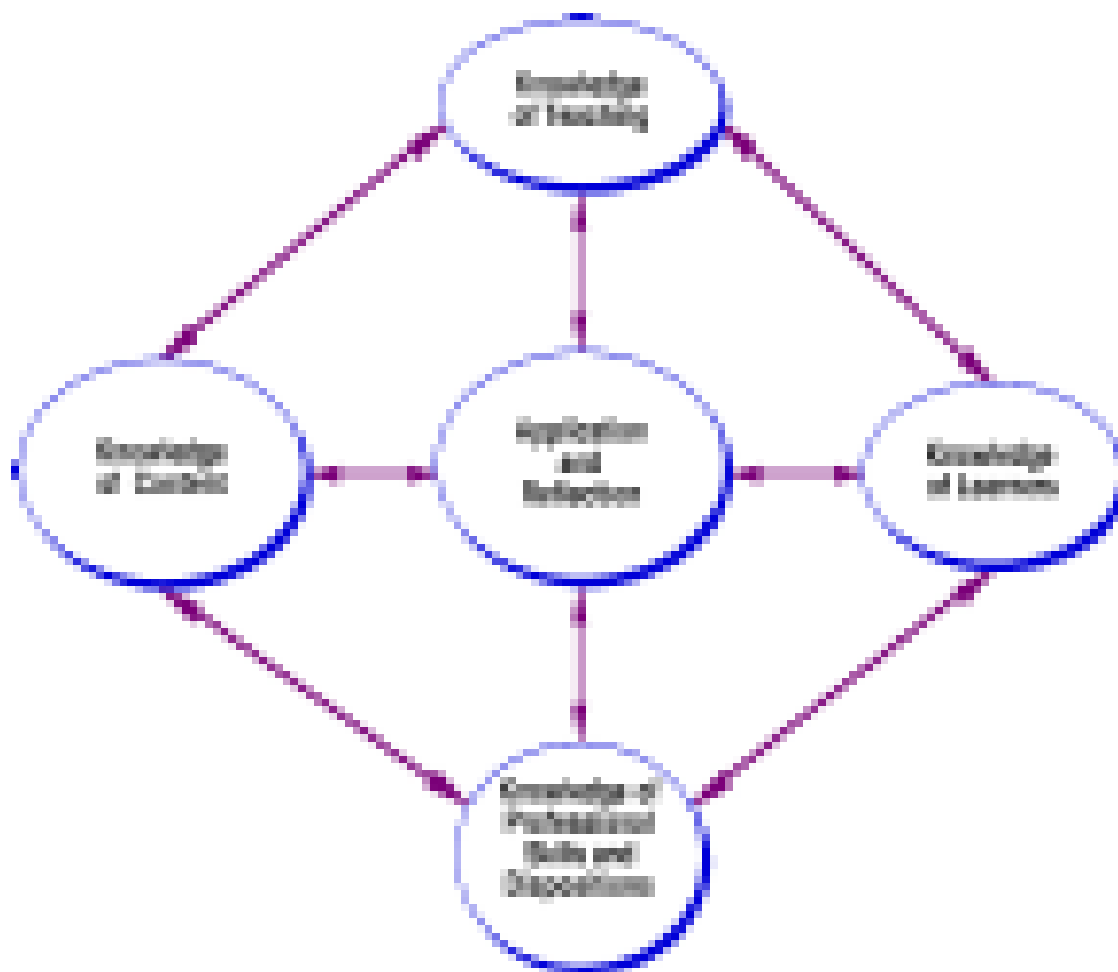


Figure 1: Assessment Paradigm (Western Illinois University, College of Education and Human Services, 2002)

It is mandatory
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student is
assessed through
reflection.

and student development. They are able to apply their knowledge through field and clinical experiences. Their courses are becoming more content specific and are able to link teaching strategies with subject matter. Students are assessed at this stage through coursework, standardized testing, portfolios, and field experiences. Early field experiences are vitally important, so pre-service teachers can link these experiences as they advance through the teacher education program.

Third base represents “Knowledge of Content”. Each semester a pre-service teacher advances through their curriculum gaining more and more expertise in their profession. Each course has the potential of adding to that knowledge base. Students are continually assessed on content knowledge through coursework. Prior to student teaching, students are required to pass a standardized assessment within their own content area. They are also assessed through their teaching portfolios and field experiences. We have also recently required an assessment to evaluate technology competencies.

Each base or area has a vital role in the assessment of pre-service teachers. The paradigm illustrates that each area is linked to or supports the other entities. They all work together like

players on a baseball team in order to complete the assessment process to ensure quality candidates and protect the integrity of the teacher education program. One key ingredient in assessment is creativity. We have the freedom to “think outside the box”. Items like rubrics, authentic assessment, and peer reviews are becoming common terms in our vocabulary.

This year, my students provided me with an opportunity to create a new method of assessment for a course final. They wanted something new and exciting. I wanted something that was comprehensive, so I designed a final that slightly resembled a “scavenger hunt”. Students were divided into groups to form teams. They were handed a list of items that they had to find or develop within a given timeframe. As a team, they had to delegate responsibility to certain team members to complete. Before the final, I requested that my students bring all of the materials that were distributed throughout the duration of the course to be used as resources. They were also able to utilize a computer lab as a resource to complete their tasks. I concluded that the activity was successful. The time limit forced them to delegate tasks and then reach a consensus among team members to develop answers. I told my students prior to the final that they may not like the outcome, but they would like the activity. Well, I was wrong; the activity and the outcome exceeded my expectations. The students enjoyed the fast pace and I believe comprehension was properly assessed. This activity has certainly stimulated my thinking to create new, innovative forms of assessment.

In conclusion, assessment is an integral component of our daily activities as educators. The sport of base-

ball allows for creative thinking within the structured parameters of the game. As educators, it is our responsibility to create new, innovative ways to assess our students, while staying within our institutional parameters. Each year, the educational environment becomes more and more challenging. I hope I was able to stimulate a new way to approach assessment that keeps students excited about learning. Enjoy your summer!

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Assessing Non-Formal Student Learning: A Student's Perspective of the Learning Process

By Craig E. Feggins, Chanda D. Elbert, and Alvin Larke, Jr.

What happens to all the book reports, stories, posters, models, dioramas, and other pierces of students' work once they've been turned in, graded, and passed back? A glance at the grade. A slow settling to the bottom of the bookbag or a quick trip to the bottom of the trash can. Occasionally, for younger children's work, a place of honor on the refrigerator door. Is there another life beyond the grade?

This statement, by David Allen in, *Assessing Student Learning: from Grading to Understanding* (Allen, 1998, p. 1) opens a new perspective on those projects that I found very annoying when I was young. Many college students still have fresh in their memories the test and exam grades from high school that were not too good; thus, they remained deep in the annals of backpack history. Though the statement above does accurately express what students think of different means of assessment in the classroom, a student's feedback on the different methods of evaluation and learning practices cannot only help the student and his peers but the teacher as well.

In dealing with the rigid curriculums of high school, most teachers follow a close formula that they rarely stray away from, sometimes making student feedback unlikely or, in many cases, kindred and typically similar. As mentioned in last month's issue in the Harlin and Roberts article, "when assessing a student's ability to successfully master a skill taught through

hands-on, experience-based methods, performance-based assessment is a more appropriate approach." Many students don't see these posters and models as means of evaluation but rather as mandatory tasks that instructors assign because they have to. In reviewing my high school-college transition, I remember the difficulty of taking the knowledge learned from lecture and reading assignments and applying it to discussions, presentations, and other non-written forms of testing.

The concept of a professor or instructor being concerned with my comprehension and understanding of the material was something new to me. Frazee and Rudnitski express that "assessment of student learning has evolved into a central position in the teaching and learning process." This statement sums up how secondary education is handled: information is learned, applied in the construction of a poster or diorama, and a test is given. In my experience, these formal evaluation methods are necessary, but an integration of student feedback and peer interaction could improve the learning environment and process in general. An instructor's ability to change her curriculum and evaluation techniques in order to be in consensus with mandatory testing requirements and also the well-being of the student's educational experience is indicative of effective teaching. In my college experience thus far, some irrefutable forms of non-formal assessment have included discussions of assigned literature, peer interrogation sessions over particular subjects, and direct instructor/student dialogues that lessen the formality of the testing situation. Nonetheless, these methods remain as ac-

curate measurements of student success and understanding of the subject matter.

Considering that the student learning process actively involves two important agents, the evaluation of the instructor and her teaching is important from the both the student and instructor's viewpoint. A student's ability to actively engage in discussion and express opinion from an educational and pedagogical standpoint about the instructor's teaching technique is fundamental to the learning process. This can actively be seen in the following scenario:

Jonathon is a student in Ms. Johnson's floral design course. He has one of the highest grades in the course and always actively participates in teach new material Ms. Johnson is currently in her third year teaching the floral design course. In beginning their new objective of making wedding arrangements, Ms. Johnson has always made the students watch a reliable, instructional video and let the students arrange on their own. Because this assignment serves as her final examination for the course, little assistance is given. Jonathon believes that because this arrangement isn't similar to the other semester assignments, it is not a good indicator of their comprehensive knowledge; consequently, he expresses his concern to Ms. Johnson.

Being a recent graduate from high school, the concept of student/instructor evaluation in secondary education is in many regards controversial but should be considered. From the scenario, we see that one student has expressed his discontent with Ms. Johnson's assessment technique. Be-

cause the comment is from a student otherwise doing exceptionally well in the course, his outlook on the situation is taken into consideration by Ms. Johnson. Though this method of testing her student's knowledge appeared to be a good technique, her evaluation of student's work on the wedding arrangement assignment from previous semesters indicates that though her students on average do exceptionally well on normal assignments, the wedding arrangement assignment has consistently yielded lower grades. Ms. Johnson's self-evaluation and Jonathon's feedback can better her skills as a teacher and assist with the improvement of her course.

On the post-secondary level, many colleges and universities have summative evaluations for students that appraise the instructor and course as a whole. In my experience, this formal means of student criticism has helped many instructors change certain aspects of their curriculum to make it more logical and fair. In the scenario, Ms. Johnson's reflection on her assessment techniques has shown that she could give a classroom lesson in addition to the instructional video on wedding arrangements. One could agree that making the students do an individual presentation would also be an accurate means of demonstrating their learned skills.

Assessment of student and instructor is undoubtedly necessary for the teaching and learning process to be productive. Jere Brophy states, "Effective teachers use assessment to evaluate students' progress in learning and plan curriculum improvements, not just to generate grades. Good assessment includes data from many sources besides paper-and-pencil tests, and it addresses the full range of goals or intended outcomes..." (Brophy, 2001, p. 34). This is the main goal that evaluation and assessment should serve from both the student and instructor perspec-

tives. The ultimate goal in assessment of any kind is progress in that subject matter and the main objective is that non-formal methods of assessment are analogous to written tests.

The purpose of analyzing these methods of feedback and progress should be used to not only show understanding of material but also that the concepts can be applied in higher-level thinking skills and can be scrutinized for individual thought by the student. This concept seems almost cryptic on the secondary education level, but from a college student's perspective, this should be applied on that grade level to ensure students' intellect is constantly challenged and instructors also don't lose the tenacity of teaching unvarying subjects but the presentation of the subject to the student and means of testing their learned skills should never get boring.

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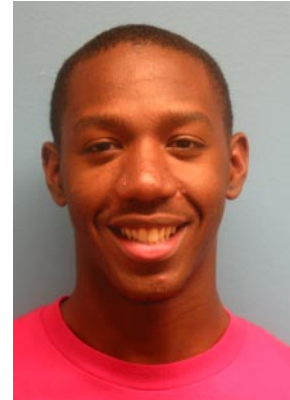
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Another Assessment Possibility

By *Tony Boehm*

Many things have changed in Agricultural Education in the last few years. One thing that has not changed since the first little one-room school-house was constructed on the prairie is the need to assess students. Much to the student's dismay, we still need to test to see if students are grasping what is being taught, and record some scores in a grade book. However, it is not just about recording a grade in our grade book. It is possible that the process of assessment can also be a teachable moment.

Self-assessment by the students provides this teachable moment. Self-assessment includes students assisting in the grading of their own projects, and in their work effort. I interview each student, while evaluating a project. Questions I ask may include

“What did you learn?”

“What would you do differently or change?”

“What grade do you think you earned?”

The students point out both positive and negative aspects of their project. Most students are hard on themselves, and other than a few dreamers, they are very honest and fair in evaluating the quality of their work.

By having students help in the grading of projects, they learn to evaluate their work. This allows for some self constructive criticism. If we are truly trying to prepare students for careers after school, an important skill set is the ability to evaluate your work and look for ways to make improvements. Problem solving is a skill they will use no matter what career they will chose. Also, students learn some negotiation skills. I always ask “Why do you think you deserve this grade?” They have to be able to defend their answer with some solid reasons.

If students give themselves a lab grade for their work effort, they learn to work up to what is expected of them, assuming you have set the bar or level of expectation. If they have not worked up to that bar or level of expectation, they will give themselves a nine out of 10 points possible for example, realizing that they probably didn't work hard enough to get a perfect score. Finally, involving students in the grading process creates a sense that the process is not so foreign to them. They had a hand in evaluating and assessing their grade and can feel comfortable with the scores recorded in the grade book. They were able to look at the work they completed critically instead of it seeming that the teacher is simply giving the grade.

Any lab activity in plant science, animal science, economics, leadership, or mechanics can provide an opportunity for self-assessment. Have the students evaluate their greenhouse or landscape work, their agriculture economics spreadsheets, or their presentations. Their evaluations may be a part of their total grade, with the instructor giving the remaining points. Students could evaluate each other as well.

Obviously, not all assessment can be done with the input of the student. We still need paper and pencil assessments that are graded by teachers. However, we can provide one more opportunity to teach students important skills, even after the project is completed.

Tony Boehm teaches Agricultural Education at Richland Jr/Sr High School, Colfax, ND



Getting From Q to A: Effective Questioning for Effective Learning

By Barry Croom and
Kristin Stair

The student teacher was doing a great job with the lesson. She was moving along enthusiastically presenting high quality content in an interesting way. She was being very clear in her explanations and her rapport with the students was top notch. Yes sir, she was going to be a great teacher someday.

And then it happened. The student teacher was up in front of the class asking a general “call-out” question. To the casual observer, her “Are there any questions?” was nothing special. To me it was an intellectual sneeze, in an otherwise disease free lesson. The well-planned lesson began to degenerate into a questioning frenzy. The more questions she asked, the less she engaged the class and the fewer correct answers she received. It was obvious that she had contracted the “common cold” of teaching – the “call-out” question.

In case you are not familiar, a “call-out” is when the question goes out to the entire class, and is not directed to any student in particular. As an educational tool it is practically useless. Yet teachers use it as if it were one of the greatest teaching tools available to them. A student teacher was once observed asking 90 questions in a 30-minute period. At 20 seconds per question, there was not much time for students to respond.

What is wrong with this type of questioning, why is it detrimental to the learning process, and how can teach-

ers sharpen questioning skills and be more effective? The first mistake that teachers make is using questions as a form of classroom management. Teachers, new ones particularly, are taught to make certain that the class is engaged in the lesson so as to prevent discipline problems from cropping up. As a result, they turn to questioning as a primary mode of classroom management. Questions are best suited as diagnostic tools that indicate student academic progress or assess critical thinking.

These teachers naturally assume that flinging question after question out to the class is engaging the students in the lesson. In fact, the opposite is often true. Whenever a teacher presents a general question to the class, three things might happen. One, the student who knows the answer will blurt it out before anyone else in the class has had a chance to think about the question and formulate an answer. The quick draw answer wins, and the other students are not rewarded because they were too slow in coming forth with the correct answer.

The second thing that might happen is that the student who craves attention will answer the question even though they are clueless as to what the correct answer is. They are motivated by a strong desire for attention, and call-out questions give them an opportunity to get some.

The third thing that often happens is that the student who is really unsure of his or her academic ability or is having difficulty understanding the subject matter will not attempt to answer. Therefore, the teacher is clueless as to the student’s academic progress, at

least until test time rolls around. Trying to correct deficiencies in student learning is very difficult to do after the unit test has been administered. Questions are tools of the teacher’s trade. They must be used skillfully to be effective. Here are a few suggestions for improved questioning skills.

Ask Directed Questions

Call on individual students to answer questions. Let’s say that you are teaching a unit of instruction on forestry. Call on a student, and then ask the question.

“Bob, what is the common name for Quercus alba?”

If Bob doesn’t know the answer, probe a little bit to find out what he does know.

“Bob, first of all, give me the names of all the oaks we have studied in this class thus far.”

The key point is to get Bob to give you a correct answer to at least a portion of the question. The message this will send to the class is that they are expected to know the material and are responsible for their own participation in the class. Furthermore, students who experience success in class activities are likely to perform with less anxiety in the class. However, you must stop short of embarrassing Bob in front of the class. If you embarrass students, they are likely to get nervous and be unable to answer the question even though they might know the answer, or they might exhibit misbehavior in order to deflect attention from their inability to answer the question. One disadvantage to the method described

above is that the other students in the class might be encouraged to take a mental break while you probe for an answer with Bob. A variation of this technique is to ask the question, then choose a student to answer.

“Okay, I’m going to ask a few questions about the oaks we have studied in this class.” “Please wait until I call your name.”

It is important to spread out the questions evenly in the class. It is also important that teachers not rule out the use of general questions entirely, because they do serve a useful purpose when followed up with directed questions. “How many of you have ever visited a commercial tree farm? Raise your hands please” From the show of hands, call on a student to answer this question. “What were some of the things you noticed about how pines are transplanted, Jennifer?”

General questions can help set up the use of directed questions in a class. They are also very useful in encouraging students to think about topic. As with any teaching method, overuse leads to a lack of effectiveness.

Allow For Wait Time

The average wait-time for a response to a question is one second, and a teacher’s reaction to a student’s response is usually less than one second (Rowe, 2003). There are two different “wait times” to consider when using questioning as a teaching tool. Wait time I occurs when the teacher waits for the student’s initial response to a question. Wait time II occurs when the teacher waits a moment after the student’s answer. In some cases, the student will speak again and more fully explain their answer. By extending the amount of time a teacher waits for an answer, some interesting things happen. First, the student’s answer is more

thorough and involved. Secondly, the students exhibit a greater command of language specific to instruction. One significant result of increased wait time is that the number of correct student responses increases along with the quantity of appropriate student responses (Rowe, 2003). When a teacher demonstrates to the students that questions are a serious matter and not some ploy to cause them to behave, they tend to respond in a more serious and engaged manner. Increased wait time also increases participation by lower-achieving students and reduces the number of questions asked by the instructor overall (Rowe, 2003). Every lesson has time for 2 to 3 seconds of wait time between questions and answers.

Ask Divergent Questions

Martin (2003) found that most questions asked by teachers on tests are at the lowest level of Bloom’s cognitive domain. Bloom’s cognitive domain divides question up into different levels with knowledge being the most basic types of questions and evaluation being the most involved. Most questions are convergent; there is one correct answer to the question. Try asking questions that stimulate original thought and higher order thinking by encouraging students to think of possibilities.

“What are some possible solutions to dealing with Verticillium Wilt, Larry?”

Divergent questions have more than one correct response and focus on higher order thinking skills. The common mistake that many teachers make when they are approached with higher order and divergent questions, is to assume that these questions have to be more difficult. Instead of being more difficult, these questions allow teachers to encourage students to be

creative and analytical in their thinking. Unfortunately, many teachers have difficulty determining the difference between open and closed questions (Martin, 2003). Asking a mixture of convergent and divergent questions at all of Bloom’s cognitive level helps students to develop good problem-solving skills (Cashing, Brock & Owens, 1976). The table gives examples of lower and higher order questions found within each level of Bloom’s cognitive domain.

Questions are designed to be diagnostic tools to measure how much the student has learned, and how well the instructor has taught the material. Used effectively, they can also encourage students to develop problem-solving skills that they can use throughout the lifelong learning process. Stop asking those general questions aimed at no one in the class, and start asking more directed questions that get at the heart of student learning.

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Table 1

Bloom's Cognitive Domain

	Level of Bloom's Cognitive Domain	Verbs Associated with Each Level	Examples of Questions Within Each Level
L o w e r O r d e r	Knowledge	Arrange, Define, Label, List	"List the parts of a leaf"
	Comprehension	Describe, Discuss, Explain, Identify	"Identify which leaf has pinnate veins"
	Application	Apply, Choose, Demonstrate, Illustrate	"From the list of landscape plants, choose three that have serrated margins"
H i g h e r O r d e r	Analysis	Analyze, Appraise, Calculate, Compare	"Compare and Contrast the differences between a fibrous root system and a tap root system"
	Synthesis	Arrange, Compose, Create, Design	"Design a greenhouse that involves all of the objectives we have covered in class"
	Evaluation	Appraise, Assess, Choose, Argue	"Assess which plants would be best suited for a small scale greenhouse operation"



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Designing Assessments - Where Does Alignment Fit In?

By Jennifer E. Rivera

Agricultural Education at the secondary level is comprised of three main areas of instruction: classroom and laboratory instruction, Supervised Agricultural Experiences, and participation in the National FFA Organization (Dailey, Conroy, & Shelley-Tolbert, 2001). For example, a unit in arc welding might consist of an agricultural student taking notes in the classroom about electrodes, safety, and functions of an arc welder. The student might then go out to the shop and learn how to strike an arc and weld a bead. He or she might have a test at the end of the week where the instructor is using a rubric to measure the student's performance. After school the student has hands-on experience working on a local farm welding tractor parts in a repair shop. Later in the semester, the student participates in an agricultural mechanics career development event (CDE) where the acquired welding skills are put to the test. This seems to be the format that most agricultural programs follow. The strength is the quality and quantity of experiences the student receives.

Still following the example above, at the end of a welding unit the instructor also assesses a student's learning in arc welding with a paper and pencil test, such as a multiple-choice test. But is this test an accurate measure of student achievement in arc welding? Was it able to capture the student's learning in his hands-on experiences, like participation in the CDE or his experience at a work site? Too often this is the routine assessment practice at the end of a unit. Some reasons for this might be that teachers lack the time to gen-

erate anything more than a multiple-choice test. Also, teachers may feel that measuring performance outside a classroom setting is not as legitimate as written test. Or maybe the teacher is not trained to properly develop assessments that take into account multiple aspects of student learning.

Most agricultural programs thrive on the fact that they are not solely classes comprised of lectures and notes, but rather classes that incorporate hands-on, real-world experiences for students. Having such a developmental curriculum model in place allows for different styles of teaching and learning. If agricultural programs follow this model, why do so many agricultural programs assess students using solely a paper and pencil tests, such as multiple-choice, short answer, or essay? Multiple-choice tests mimic one part of the students' learning throughout the year — namely, classroom instruction. But such tests do not capture the learning experiences that students get by exploring a career during his/her SAE project or participating in Career Development Events sponsored through the FFA.

In order for assessment to be effective in assessing student learning it needs to capture all aspects of that learning experience through the year. This is a major concern, considering one of the primary forms of measuring student achievement is through standardized multiple-choice test. Federal law requires that states have an accountability system in place for schools, most are measured with the use of a standardized test in the academic classes (NCLB). There have been concerns that these tests are not an accurate measure of student achievement (Darling-Hammond, 1995). Such

concerns with multiple-choice testing as a measure of achievement raise the question of why they are being used to assess performance in career and technical programs. For example, many agricultural education programs still use exams such as the National Occupational Competency Testing Institute (NOCTI) test. Agricultural Education does not have a national test that different states can employ to measure student achievement. In the wake of high-stakes testing, it seems easy to legitimize agricultural education programs by providing a standardized nationwide form of assessment for agricultural programs. But agricultural education at the secondary level does not follow nationwide standards. It would be nearly impossible to generate a standardized multiple-choice assessment test applicable to agricultural students across the nation. Also, as cited above, such standardized tests are proving to be an inaccurate measure of student abilities (Darling-Hammond, 1991).

As an alternative to relying solely on a multiple-choice test for student assessment, the agriculture profession should explore broadening the assessment model and aligning with the curriculum to develop statewide assessments. The foundation for this involves adding two additional assessment components to the testing procedure: 1) Student exploration, and 2) Performance assessment. These two components would allow areas of instruction such as FFA and SAE to become part of the assessment model. Classroom learning, student exploration and performance assessment have equal importance in the full agricultural education experience. To have too much emphasis placed on classroom achievement is not a proper measure of the

student — nor is it an adequate format for assessment.

As an example, I refer to the New York State agricultural science model for assessing students. The New York State Education Department (NYSED) requires that there be a form of technical assessment utilized for program accreditation. The technical assessment should consist of three components — a written portion, a student project, and student demonstration of technical skills (Technical Assessments, 2003). The model for agricultural education seemed to fit state requirements. The written portion is a multiple-choice test developed by the Cornell University Department of Education and the NY Agricultural Education Outreach. This comprises 60% of the technical assessment.

The format of the written exam is flexible for various programs in the state. The second portion of the test is the student project. A student's Supervised Agricultural Experience project counts as such a project. They

are scored using American FFA degree award applications and proficiency award applications. This comprises 20% of the technical assessment. The last portion counts for the remaining 20% and is the student demonstration of technical skills. This includes participation in four CDE events at the state or national level at any time during the student's career in an agriculture program. Two events are required — preparation for public speaking and employment interview. The other two are determined by a student's interest. All records of SAE and CDEs are kept in a student file and are used when totaling a student's final assessment score.

This model is aligned with the three areas of agricultural education, Figure 1. Even though it is being utilized at the state level, individual schools nationally can begin to follow it. It can also be altered to suit the needs of students that may not have an SAE project or those that do not participate in FFA activities. I am asking that we get creative in designing assessments and re-

member that there is often more value found in authentic assessment than the idea that one test fits all formats.

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Figure 1: How the Three Components of Agricultural Education are Assessed



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Marketing Grain in the Classroom - Assessment of Real Life Skills

By Jonathan Morris

Teaching marketing in the classroom appears to be a thing of the past. By having students keep track of markets, students can learn things that will help them in the future whether they are farmers or if they choose other professions. Farmers need management and marketing skills to survive in a highly competitive business environment (Al-Rimawi, 2004).

Three Agriculture teachers and I had a pilot project many years ago about marketing of corn and soybeans as a way of developing student awareness and skills in marketing. Today, I still use this project as a classroom exercise, however, I have changed it over the years to include the use of computers. According to the Office of Technology Assessment's 1995 Report on teachers and technology, teachers still struggle with integrating technology into the curriculum.

Students lack the opportunity to practice the theory in real world applications (Boyd, 2002). Skills learned in the project will help develop student familiarity of markets and marketing, understanding of trends in markets, inform students of risks and rewards of marketing, and teach students how to use a computer.

The first step in this exercise is to teach the students about marketing. As basic as it may sound, setting goals is an absolute necessity in marketing grain (Brock, 1988). The following marketing objectives should be followed:

1) Watch Markets

- 2) Set Goals
- 3) Try not to get emotionally involved
- 4) Don't try for the highs – Average is better

As a class, we establish that we are going to market 100 acres of corn and 100 acres of beans, based on the current yields that farmers are experiencing locally. Normally this will be 150 – 175 bushels per acre for corn and 40 – 50 bushels per acre for beans. There is a minimum sale of 500 bushels of corn and 250 bushels of beans to be sold at a time. Each student must sell 50% of the grain on the spot market and 50% on the futures market.

**As basic
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necessity.**

Students are asked to keep track of markets starting the first full week of September. This allows time at the beginning of the semester to talk about marketing grain. This daily market

price will be kept on a computer spreadsheet. Each student is given his or her own floppy disk on which to save the Microsoft Excel spreadsheet, rather than using the hard drive. This year, I had one student who kept his spreadsheet on a flash drive. Each student will keep a spot price and a futures price. I utilize one Website for this price. All the students will have the same prices. The spot price is always a local elevator spot price. The futures price is usually two to three months away. The students must have a reason for selling. A rationale must be provided with each sale. This could be because of the high price or they may have a bill to pay.

Each student must keep track of his or her own sales on the computer and by hand. The one that is kept by hand is shown to the teacher the day the student wants to sell grain. I then sign the paper for proof of the sale. I use this paper to verify all of the sales at the end. My signature on the paper is proof of the sale or the "contract". The student then keeps track of the sales price and the number of bushels that are sold on the computer. He or she cannot go over the amount of grain that was established in the beginning as having been grown.

The student has to have all grain sold by March 1st. Along with keeping track of the market prices, each student must keep track of the number of bushels sold and the total dollar amount received for the grain. This is done on the same Excel file, but on a different sheet. They must also keep track of their average price per bushel. This allows them to know if they have met their goals of marketing. Business owners, managers, and farm operators need to maintain effective bookkeep-



ing systems and to be able to interpret and analyze their records properly if the best management decisions are to be made (Al-Rimawi, 2004).

The students are also required to keep a graph of the markets. This visually shows the students what the market trend has been. I grade the spreadsheet, graph, and manual sales sheet every two weeks. This holds the students accountable for their assignment.

Along with this exercise, I have the students keep another spreadsheet where they are to sell some grain every Wednesday. This allows them to see what would happen if they average their sells throughout the period. Through many years of doing this exercise, we have proved that the sales of grain every week usually results in a higher average than the student sales. In the last few years, many grain companies have added programs that resemble this average selling. Farmers are paying extra dollars for this service. By showing students how to sell a little at a time, a student may save

money in the future if he/she goes into farming.

At the end of the exercise, we discuss different strategies that the students have used in their marketing plans. This allows students that did not do as well to understand why they had a lower average price per bushel. They can also see what happens if they sell a little at a time each week.

Students who will never have a bushel of grain to sell in real life can learn a lot from this exercise. Talk to any mutual fund broker about investing money. It is the same thing as selling grain, but just the reverse. You are investing at different costs versus selling at different prices. Students enjoy the competition and get excited when March 1st approaches. This is a great learning tool for marketing as well as using computers.

The following is an example of the spreadsheet that the students keep. This is a three-week example. By doing this exercise, you are not only teaching marketing skills, but the student is

also learning how to use a computer and utilize a spreadsheet.

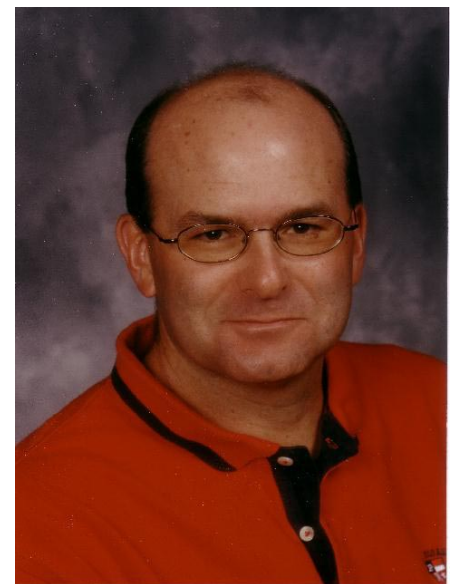
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Jonathan Morris is an Agriculture Teacher

Grain Marketing Exercise

Sample Spread Sheet

Student Name

Date	Bean Sales		Corn Sales		Beans Price		Corn Price		Bean	Corn
	Spot	Futures	Spot	Futures	Spot	Futures	Spot	Futures	Gross \$	Gross \$
09/06/04					\$ 6.390	\$ 6.330	\$2.240	\$ 2.340	\$ -	\$ -
09/07/04					5.940	5.880	2.160	2.240	-	-
09/08/04			1,000		5.940	5.900	2.120	2.240	-	2,120.00
09/09/04	500				5.720	5.880	2.140	2.250	2,860.00	-
09/10/04					5.650	5.810	2.100	2.210	-	-
09/13/04			2,000		5.510	5.720	2.050	2.180	-	4,360.00
09/14/04					5.580	5.750	2.030	2.170	-	-
09/15/04					5.510	5.750	1.990	2.170	-	-
09/16/04		1,000			5.470	5.770	1.920	2.180	5,770.00	-
09/17/04					5.530	5.580	1.950	2.140	-	-
09/20/04	500		1,000		5.220	5.490	1.940	2.120	2,610.00	1,940.00
09/21/04					5.200	5.480	1.860	2.120	-	-
09/22/04					5.170	5.480	1.840	2.110	-	-
09/23/04					5.150	5.470	1.800	2.070	-	-
09/24/04					5.040	5.360	1.750	2.040	-	-
	1,000	1,000	2,000	2,000					\$11,240.00	\$8,420.00
Totals	Beans	2,000	Corn	4,000	Average Price/bushel				5.62	2.11

Assessing Your Teaching Through FFA: FFA Members Today, Community Leaders Tomorrow

By Brad Bryant and
E. C. Conner

State standards and student testing often make the headlines of the local, state, and national news. The teachers of the core academic subjects of math, English, social studies, and science are consistently under pressure to have high standards of student performance. Test scores and the percentage of student passing state assessment tests are constantly publicized and critiqued.

Schools and school divisions are often in a competition to have the highest test scores in the academic subjects. Competition along with high standards for student performance is nothing new to agricultural education. We compete against our peers through the many programs offered through the National FFA Organization. Agricultural Education programs must also compete at the local level to gain students and meet the needs of the community.

How can you assess your teaching? Just as schools often gauge academic teachers through student test scores, student participation in FFA activities allows the agricultural education teacher to compare themselves to their peers in district, state, and even national competitions. Member participation in CDEs, proficiency awards, agriscience activities, leadership events, as well as state and national conventions feed your students with knowledge and return those skills to the community.

So, how can we assess teaching in agricultural education? FFA pro-

gram competitions, community feedback, and student success upon completion of your program will provide the feedback needed to determine your success.

The FFA often provides students with their only opportunity to excel and be a part of “school life”. Is it difficult to carry out a really good program that includes a strong FFA? Agricultural education teachers know about the times of teaching a full class load and then watching other teachers go home while a ‘second’ day begins with a flurry of FFA activities. Evenings and weekends often include meetings, career development practices, fund raisers, student visits, completing award applications and all of the other duties of an FFA advisor.

Most successful agricultural education teachers will tell you that the personal satisfaction and experiences are worth every minute of the work. However, teachers and students are not the only winners. Former FFA members make up a tremendous part of this community.

For example, let’s look at a small

community in southside Virginia. The first-year agriculture teacher at Park View High School was a 2000 graduate of the program. He was a five year FFA member and served as a Park View FFA officer. He was a winner of three different state proficiency awards, and was a member of a national winning homesite evaluation team.

Leaving school and merging left onto Route US 1, you travel one mile and noticed the building on the right that formerly housed Mack’s Unlimited. This former Virginia FFA officer, state public speaking contest runner-up, and

winner of two state proficiency awards recently sold this very successful hunting, fishing and boating sales business to spend more time as a member of a professional speedboat racing team. He is the committee chairman for the Joey Brock Memorial Scholarship set up to honor a

former friend and FFA member that was killed in a hunting accident. This fund has provided thousands of dollars to FFA members in the local community to further their education. This building is not empty. Bill’s Auto Sales

Most successful
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work.

has just moved in. Bill is a former FFA member. He was a national finalist in the Agricultural Sales and Service Proficiency Award program and was a member of a state winning land evaluation team. He operates this business, works as a professional auctioneer and owns several hundred acres of farmland that includes cattle and sheep.

Another hundred yards down the road is the local Ford dealer. A Calhoun's Lawn and Landscape truck is parked in front of the building and several workers are implementing a new landscape design for the facility. Brian is a former National FFA Proficiency Award Winner in Turf and Landscape Management. He also participated in the National Forestry Contest, was a state winner in Computers in Agriculture, won two FFA CDEs at the middle school level, and participated in the National Land Pasture and Range Judging Contest in Oklahoma City. Brian just expanded his business to include a mulching sales and hauling operation. His operation is now worth over a million dollars.

This community is full of former FFA members and valuable contributors to the community. Mark, a former National FFA Proficiency Award finalist in two areas owns hundreds of acres of farm land that includes flue cured tobacco and livestock. Mark is also a community leader serving as an officer in the local fire department. Barner's Nursery is operated by a former American FFA Degree recipient and was a National Finalist in Turf and Landscape Management. He also participated in the National FFA Meats Evaluation CDE and public speaking on the state level. He helps his parents run a country store located right beside his nursery that includes a meat market with fresh cut steaks. He speaks to local community clubs and school organizations and has his own news column in the local news paper. Another member of a National Meats Evaluation team works as the meats department manager for a local chain supermarket. Tim works for Food Lion in South Hill. Greg, owns Lorene Building Supply. He is a former State Proficiency

Award Finalist. Wesley, a former chapter officer, National Proficiency Award Finalist, participant in the National Land Pasture & Range Contest and National Forestry CDE event participant is now serving Mecklenburg County as the Soil Conservation Specialist.

It is obvious that the FFA prepares students to lead our local communities. Reflecting on these stories reinforces the importance of the local agricultural education program. It also illustrates just how much the FFA experiences mean to the development of student's leadership skills.

Agricultural education teachers can assess their success by comparing FFA participation with their peers in the states that have similar experiences. FFA success translates into community support. The community of South Hill, Virginia is strong because of yesterday's Park View FFA members.

As your teaching career progresses, how do you know if your teaching is meeting the needs of the students in your community? The answers will be everywhere.

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A Teaching and Learning Needs Assessment for Georgia Agriculture Teachers

By John C. Ricketts and
Dennis Duncan

Agricultural education has undergone many changes in the past few years. With the changes in agricultural education, comes the need to continually identify the teaching and learning needs of agriculture teachers of today. Agriculture teachers in the state of Georgia reflected on their experiences and skills set to determine the professional development priorities for teachers in their state.

Specifically, Georgia ag teachers identified where they needed the greatest amount of help in regards to “teaching and learning.” Let’s look and see what areas these teachers have decided to improve. Table 1 lists the “teaching and learning” competencies the teachers contemplated. The **bold** competencies at the top of the list represent areas of focus for professional development and personal improvement in the classroom.

Motivation

The number one competency ag teachers identified as an area where they need training/professional development to improve in was “motivating students to learn.” All us have had or are currently experiencing a teaching situation where students just don’t seem interested. We must remember that motivation to learn is a function of “the quality and variety of learning experiences that are under the direct control” of the agriculture teacher (Newcomb, McCracken, Warmbrod, & Whittington, p. 31). Likewise, we need to remember that the learning activities we plan

must reflect the wants, needs, interests, and aspirations of students (Newcomb, etc...). Specifically, some of the major contributors of student motivation are:

- Instructor’s enthusiasm
- Relevance of the material
- Organization of the course
- Appropriate difficulty level of the material
- Active involvement of students
- Variety
- Rapport between teacher and students
- Use of appropriate, concrete, and understandable examples (Sass, 1989)

Critical Thinking

Ag teachers in Georgia also recognize the great need to teach students how to think critically and creatively. Principals, workshop presenters, and anyone with a PhD seems to preach the importance of critical thinking, but no one seems to be articulating how we are to go about fostering critical thinking in our students. A recent study of National FFA leaders concluded that projects and teaching methods designed to engage the curiosity and truth-seeking capacity of students may be one way to affect critical thinking. The same study also indicated that leadership training opportunities, like the ones available through the FFA, might foster critical thinking (Ricketts

& Rudd, 2005).

Critical thinking can also be developed from frequent group discussions in the classroom. Following are some suggestions for facilitating discussions that promote critical thinking:

- Expect reasons to be given when statements are made
- Be a model of critical thinking: Review what you say and look for mistakes in your reasoning. This teaches students to be self-correcting.
- Use literature, movies, music, and other media which includes experiences that are meaningful to the students
- To get started with the discussions that promote critical thinking, it is a good idea to first talk with the class about what makes a good discussion (Wilks, 1995).

Managing Behavior

Managing student behavior problems was identified as the third most needed area for continuing education and/or professional development. Most of us in agricultural education have wonderful students most of the time, but that small percentage of “problem children” can give us an enormous headache. Below is a list of potential procedures to follow for fewer headaches in the classroom.

1. Hold and communicate high behavioral expectations.
2. Establish clear rules and pro-

cedures and instruct students in how to follow them.

3. Make clear to students the consequences of misbehavior.
4. Enforce classroom rules promptly, consistently, and equitably from the first day.
5. Devote time to teaching self-monitoring skills.
6. Maintain a brisk instructional pace and make smooth transitions between activities.
7. Monitor activities and give feedback and reinforcement regarding their behavior.
8. Create opportunities for students to succeed in their learning and social behavior.
9. Identify those students who seem to lack a sense of self-confidence and work to help them achieve an internal locus of control.
10. Make use of cooperative learning groups, as appropriate.
11. Make use of humor to stimulate student interest or reduce classroom tensions.
12. Remove distracting materials (animals, projects from another class, etc.) from view when instruction is in progress (Cotton, 2005, <http://www.nwrel.org/scpd/sirs/5/cu9.html>)

Special Needs

Teachers also believed they needed to learn more about working

with special needs students. Perhaps the diversity of needs makes this a hard part of teaching to master. Special needs include learning disabilities, behavior disorders, physical disabilities, giftedness, and others. We recommend visiting the *Special Needs Opportunities Windows* (SNOW) website (<http://snow.utoronto.ca/best/accommodate/index.html>) to gain a better understanding of possible strategies you can use to work with special needs students. Following is a list of classroom strategies to practice regularly for all types of needs. Students should

- enter the classroom at the same time as the other students
- be seated so that he/she can see and participate in all activities and so that other students and the teacher can interact easily with her/him
- participate in classroom activities at the same time as the other students
- make transitions from one activity to another at the same time as the other students
- leave the classroom at the same time as the other pupils
- have his/her academic and social progress a constant focus of the program
- be involved in class activities, e.g., asking and answering questions, group activities
- be encouraged to behave the same way as the other pupils, e.g., remaining seated during instruction
- be assisted only when neces-

sary with that assistance fading as soon as possible.

One of the premises of motivation is to set students up for success. To motivate you to practice some of these suggestions we only decided to address four competencies at this time. Best of luck to you all – especially when that classroom door closes behind you.

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Table 1

Teaching and Learning Competencies

Competency	Rank
Motivating students to learn	1
Teaching students to think critically and creatively	2
Managing student behavior problems	3
Teaching learning disabled students	4
Teaching students problem-solving and decision making skills	5
Organizing and supervising teaching laboratories	6
Teaching using experiments	7
Assessing and evaluating student performance	8
Developing performance based assessment instruments	9
Conducting parent / teacher conferences	10
Planning and conducting student field trips	11
Conducting an adult program	12



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