Student Assessment: Overview and Emphases

In general education, student assessment typically translates into a letter grade at the end of a marking period. The grade is usually norm referenced in that it reflects student performance in relation to other students. Further, instruction is primarily in a classroom situation.

In contrast, vocational agriculture includes supervised occupational experience programs (SOEP) and FFA in addition to in-school instruction on subject matter. Additionally, a higher proportion of agricultural class instruction is in the laboratory setting reflecting a learning by doing philosophy. Student assessment should encompass all parts of the vocational agriculture program.

Assessment to arrive at the letter grades required by most public school systems is a limited view of assessment and perhaps the least important purpose for evaluation in vocational agriculture. Of far greater importance are the daily and weekly assessments that give feedback to individual students to improve their performance, and that provide the basis for planning teaching strategies to enhance student learning. Such assessments also provide feedback for teachers to improve their teaching.

Student Profiles

The advent of performance/competency based instructional objectives as a part of the competency based instruction (CBI) movement of the 1990's has facilitated the explanation and assessment of the knowledge and skills to be learned by students. Individual student profiles indicating the level of student achievement for each instructional objective are written and used by many teachers.

Such profiles guide students as to what they are expected to learn, provide information on student progress during the course, and serve as a record of student achievement at the end of the course. Profiles are also used as a guide (educational contract) for students' SOEPs; the objectives added should reflect individual student career goals.

Student's goals for FFA awards and contests, which are not based on accomplishments in SOEP (e.g., public speaking or local scholarship), are another source of objectives for individual student projects. The individualized composite profile then serves as an educational guide to, and basis for assessment of, student achievement.

Work Attitudes

The assessment of attitudes and habits is important. Research findings and feedback from employees consistently indicate positive work attitudes and habits to be more important than knowledge and skills for successful employment.

Assessment of attitudes and habits is a significant part of assessment due to their importance to successful employment. Some teachers assign a daily attitude/habits grade for individual students, particularly where school work is involved. Grades are communicable to students as part of efforts to improve student affective performance and constitute a part of the course grade.

Assessment of special education students with handicap situations mainstreamed in vocational agriculture classes is often a matter of school policy — where such exist — and the nature of the handicap. Assessment based on a profile of instructional objectives reflecting limitations imposed by the student's handicap is feasible. The translation of student achievement on a limited profile of objectives into a letter grade for the course varies depending upon teacher philosophy and school policy.

Summary

In summary, while assessment for grades is typically required in public schools, assessment used to enhance student progress is of much greater significance. Assessment should reflect student achievement in all three components of the vocational agriculture program: in-school instruction, SOEP and FFA. Evaluation of work attitudes/habits as well as knowledge and skills is needed to prepare students for success and satisfaction in agricultural occupations.

Evaluation in the Laboratory

Skills training is a very important component of the Swine Confinement Management Program at our community college since the vast majority of our graduates will assume management roles in swine production. We have identified competency skills that we feel are essential to entry-level occupations in swine production management.

Laboratory and classroom experiences provide our students with an opportunity to gain background knowledge and hands-on training. Our students complete an eight week cooperative field experience period during their last quarter to gain proficiency and additional experience prior to graduation. The laboratory experiences serve as a foundation upon which our students can build in preparation for the cooperative field experience period.

Steps in Competency-Based Laboratory Instruction

We have identified nine steps that we have found to be a successful approach to competency-based skills training.

1. First, the basis for the need of the training must be established, justified, and communicated to the student. The justification of the need can be established by a job description for the occupational goal, by curriculum standards, or by recommendation of an advisory committee. Whatever be the source used for justification, the source should be communicated to the student. This serves as a basis for developing student interest in the laboratory activity.

2. Second, objectives should be specific and goal-oriented. They should be written and copies provided to the student. Our students are provided a list of technical skills which they will be able to perform during laboratory training and the cooperative field experience. It is important that students know clearly what is expected of them.

3. Third, instruction is provided for background knowledge of the skills to be performed. Laboratory experiences should be closely linked with the knowledge acquired in practice. A schedule for laboratory experience training should be intertwined with classroom preparation.

Fourth, students need to become familiar with the equipment to be used for the skill activity. Instruction on the use, care, and safety is important. It is also helpful if the student can practice the use of the equipment on throw-away material before being confronted with the real thing.

Fifth, an on-site demonstration by the instructor should be given prior to student performance of each task. Students should have the opportunity to practice under the supervision of the instructor. It is important that the instructor observe each student performing the assigned task. Students can also learn by watching each other during the activity.

Seventh, students should receive immediate evaluation upon completion of the task.

Eighth, opportunities should exist for the student to further develop production of the task. In many cases, field experience training or individualized projects can accomplish this objective.

December, 1983

By DARWIN J. MILLER

(editor's note: Dr. Miller is Instructor-Coordinator, Swine Confinement Management Program at Elsworth Community College in Iowa Falls, Issue 5026.)

Ninth, students should review and use a checklist of skills completed. Our graduates have found their labora-
tory and cooperative field experience checklists very helpful in preparing a resume. The checklist should identify the experiences and skills to be performed with a blank provided for the instructor or supervisor to initial upon completion.

Evaluating Laboratory Experiences

One of the greatest challenges facing instructors in evaluating laboratory experiences is how to make the evaluation more objective than subjective. What is important? Should the end result provide the basis for evaluation? Performance of tasks usually involves several aspects. Some of these are basic knowledge of the skill, selection and care of equipment and supplies necessary for the task, correct safety procedures used, proper technique as instructed and demonstrated by the instructor, and the product or end result. An evaluation plan should incorporate all of the procedures necessary for task completion.

The various areas can be weighted according to the individual skill task. This evaluation plan would be the basis of a form listing all of the criteria to be considered in evaluation of the skill with the maximum points possible listed by each criteria. Upon completion of the skill by the student and evaluation by the instructor, the student would receive a copy of the evaluation and an oral summary by the instructor.

This objective approach would eliminate much of the frustration students experience on receiving strictly a letter grade based on a subjective evaluation plan.

Summary

Good laboratory instruction requires diligent planning and coordination. Laboratory experiences should be built around classroom instruction and incorporated into the total instructional plan. It cannot be looked upon as an opportunity to escape from the traditional classroom setting. Laboratory experiences should be regarded as one of the methods to accomplish the objectives of the total instructional unit.

Identification and verification of the laboratory and field experience training activities not only spell out objec-

(Continued on Page 6)
Evaluation in the Laboratory

(Continued from Page 5)

tives for the student but also provide credibility for their learning experiences.

Accountability in evaluation of student performance can be enhanced when the criteria for measurement are clearly stated and reflect achievement of all aspects involved in completion of the activity.

Emphasis should always be placed on achievement of the end result, but techniques used to reach the end should be included in the evaluation because they will be necessary for the success of the student in their occupational area. Our responsibility to students involves not only the instruction of technical skills, but also the development of proper techniques and habits which will be demanded by their respective industries.

Manager must initial skills completed!

1. Successfully "lay-one" process at least 200 pigs.
2. Successfully castrate at least 100 pigs.
3. Site and set at least 20 litres of pigs.
4. Assume responsibility for a farrowing room for at least 2 weeks.
5. Feed lactation room animals according to the units feeding program.
6. Wean at least 2 rooms of lactating sows.
7. Wash and disinfect at least 1 farrowing room and 1 nursery room.
8. Assume responsibility for 1 nursery room for at least 1 week.
9. Site and set pigs In at least 1 nursery room.
11. Heat-check at least 50 sows.
12. Pregnancy-check at least 50 sows.
13. Prepare a herd health schedule for unit (immunization, sanitation, parasite).
14. Feed gestating and breeding animals for at least 2 weeks.
15. Complete a pig flow schedule for the unit.
16. Complete a management schedule for 1 week's operation of the unit.
17. Record and use daily information on unit's work record cards.
18. Complete a monthly unit production summary and herd report.
19. Attend a monthly board meeting of the stockholders.
20. Monitor and adjust heating and ventilation in at least 2 rooms.
21. Complete work and chores for the unit at least two times.
22. Take rectal temperatures of at least 5 sows.
23. Ear tag at least 5 gilts or cows.
24. Repair at least one structural defect.
25. Assist In at least two unit maintenance projects.
26. Assist In waste transport and disposal for at least 1 day.
27. Record the feeding schedule and nutritional program of the unit.
28. Prepare a monthly cash flow statement for the unit.

THE AGRICULTURAL EDUCATION MAGAZINE

Attitude Improvement

Attitudes have a major effect on student employability. If we are always preparing students for employment, we must not only help them develop the needed skills but also the needed attitudes. "Many employees lose their jobs because of careless personal habits (for example, being late to work), and not because they are inadequate at the skills required on the job" (Hamilton, et al., 1981, p. 3). One employer, visiting the Coe-Brown Vocational Agriculture class, said he had a student interview for a position at his gas station with bare feet. He did not get the job.

Assessing Attitudes

Teachers traditionally have used paper and pencil tests to measure how much a student remembers about a topic. Many teachers also check skill development of students in the laboratory. Unfortunately, an area often overlooked is the measurement of attitudes. Check (1979) suggested that the process of performing a skill be assessed as well as the product. Safety should be evaluated whenever it is involved in a skill. There are other attitudes demonstrated by students in the development of a product that should also be considered.

Teachers can measure many of these attitudes by observing behavior. Students can be observed as they go about their everyday behavior and given feedback on a regular basis so improvement can be suggested. Calder and Rom suggest that "attitude is an important cause of behavior though by no means the sole cause" (1975, p. 30). If it is an important cause, and if we can teach acceptable attitudes, then we should be able to reinforce positive work attitudes and discourage negative ones.

Methods of Measurement

There are many ways to assess student performance. The ultimate is the evaluation by the employer. Many times we forget to check with them after our students have graduated. We can also make assessments of our students while they are in school. There are attitude questionnaires available and simple checklists which we can develop.

A checklist of attitudes can be developed with the help of your advisory committee. Ask them what work attitudes they believe are important for their employees. They might include such things as getting to work on time, proper care of tools, and being helpful to customers.

We find many students who demonstrate these attitudes and they should be rewarded. There are others who do not worry about getting to school or class on time. Will this attitude also be evident, even though the student may be very skilled?

Positive reinforcement for students is important. The checklist used at Coe-Brown is used in a positive way. Students are given positive reinforcement by receiving check marks on the checklist posted on the entrance door. It only takes a few minutes at the end of the period for the instructor to complete it which is important.

BY DAVID L. HOWELL AND BRUCE FARR

(Continued on Page 8)
Attitude Improvement
(Continued from Page 7)

Week of
A check (+) indicates satisfactory behavior
Student Names

<table>
<thead>
<tr>
<th>Joe R.</th>
<th>Robby C.</th>
<th>Charly L.</th>
<th>Art L.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correct use of tools</td>
<td>Correct safety procedures</td>
<td>Proper tool maintenance</td>
</tr>
<tr>
<td></td>
<td>Make good use of time</td>
<td>Work area maintenance</td>
<td>Willingness to help others</td>
</tr>
<tr>
<td></td>
<td>Clean-up duties</td>
<td>Total</td>
<td>Project description</td>
</tr>
</tbody>
</table>

This evaluation provides a weekly evaluation of student progress. An "S" may be given for a required reminder of the need for safety glasses.

Summary
Are your student's attitudes showing? Teachers should express positive attitudes that will make them employable and keep them employed. Meetings with the advisory committee to identify what attitudes to consider and then provide students with regular feedback are needed. The school laboratory is a good place to start affecting attitudes.

References

Personality: A Factor To Consider

Did you ever feel that the grade you gave John or Jane was not a true indicator of their ability? Teachers at all levels have wondered about this question. We also ask ourselves, could I have done more or was John just not motivated to do the work? Fairness in assessment is very important to students and teachers alike. I suggest that if teachers are not aware of how their student's personalities differ, they will not be able to fairly assess student performance.

Student Differences
It has been well documented in research that students, as well as teachers, can have quite differing personality types. What is personality type? It is a combination of preferred characteristics that determine behavior. According to Carver (1981), persons prefer to be either outgoing extraverts, or reserved introverts: they are either sensors who gather mental information with their senses, or intuitives who use their senses to a lesser degree, but add additional meanings. Type is also determined by how people make decisions: analytical thinking or personal feeling. The final determinant is how people live their lives either by judging, being decisive, planned and orderly, or by perceiving, spontaneous, flexible, and living life as it occurs.

A combination of any of these characteristics comprises one's personal preference or personality type.

Impact of Type on Assessment
What does personality type have to do with assessing students? Lawrence (1979) believes that the failure of teachers to recognize type differences in their students is probably the most serious unrecognized problem in American education.

A few students in vocational agriculture learn well in the traditional classroom where strong emphasis is placed on reading and writing, and they do well on written tests. The majority of students, 75 percent or higher in vocational agriculture classrooms, do not perform well when reading and writing are used as a major assessment technique. Many teachers have known this for years and have based their assessments on hands-on performance in the laboratory rather than just on written tests.

When teachers base their assessment technique on how a majority of students learn best, a gradual change occurs in student success. Students that are labeled low achievers may begin to show remarkable signs of higher intelligence and their performance in agriculture classes improves. Teachers in other subject areas may infer that vocational agriculture is a snap course when, in fact, you have learned how to teach, and assess your student's achievement in a way that truly measures their potential.

Assessment Based on Type
The majority of students in a typical vocational agriculture classroom are extroverted (active) and sensing (practical). Here are a few tips on how to set up an assessment program that will measure student's strengths rather than their weaknesses, which is not true of most grading procedures:

1) Extroverted students need movement and action. Therefore, the more "doing" activity the better they will learn. Being quiet and sitting for an extended period of time is not a conducive learning environment for extroverts. Directed laboratory experiences are ideal for these students. Extroverts may do better than introverts on oral rather than on written tests. Extroverts may do better on tests applying knowledge than on tests of concepts and ideas.

2) Sensing students are more interested than intuitive students in the real thing. They learn best when given a principle or rule followed by many examples of variations in applying it. They enjoy practice. They are at a particular disadvantage in timed tests, written tests; especially essay tests, or tests requiring knowledge or theory. Sensing students do best when measured by performance tests.

Conclusion
In summary, research, and a practical understanding of how a majority of students learn, would indicate that many teachers may need to re-evaluate their assessment techniques. Few of us would deliberately assess student performance in such a way that students would do poorly.

The vocational agriculture teacher is strongly influenced by the academic method of teaching through the way we were taught to teach or by peer pressure. As a result of these influences, we may have subtly abandoned our vocational philosophy that was firmly grounded in the proven learning practices of "learning by doing." More recent findings about learning styles and personality types assure us that the founders of the vocational education philosophy were right. Have we drifted away?

I suggest that it is time to assess students' progress. Our students do need to be encouraged to read and write, but the extroverted-sensing student will do best when assessment is performance oriented. Teaching and evaluating in the vocational method may not be the easiest, but our students will learn at their best. When that happens, we can be proud to be vocational agriculture teachers.

References
Myers, Isabel, INTRODUCTION TO TYPE. Consulting Psychological Press. 1981.

THE AGRICULTURAL EDUCATION MAGAZINE

DECEMBER, 1983
Using Evaluation in Teacher Education

By R. Dean Shipp

(Editor's Note: Dr. Shipp is an Associate Professor in the Agricultural Education Program at the University of Delaware, Newark, Delaware 19713.)

Providing student teachers with competence in FFA are important components of student teaching. (Photographs courtesy of Gilbert Goller.)

In the spring of 1979, a study of the professional competencies needed by beginning teachers of agriculture was conducted in Delaware. All high school agriculture teachers and their high school principals were asked to rate a list of 250 professional competencies needed by beginning teachers. As a result of this study, those professional competencies rated as most important were given greater emphasis in the agricultural education methods courses and during the student teaching program.

Competency Categories

The teacher competencies were divided into the following categories on the survey form:
I. Program Planning, Development, and Evaluation
II. Planning of Instruction
III. Execution of Instruction
IV. Evaluation of Instruction
V. Student Vocational Organization (FFA)
VI. Supervised Occupational Experience
VII. Management
VIII. Guidance
IX. School-Community Relations
X. Professional Role and Development

The identification of the importance of key competencies in each of the above areas is an aid to agriculture teacher educators in knowing which competencies to stress in preservice courses and experiences for teacher preparation.

Strategies

I have selected the top rated competency in five of the ten categories to illustrate how the University of Delaware agriculture teacher education program was changed to prepare more competent teachers.

The top rated competency in the Program Planning Development and Evaluation category was "Develop and write general objectives for the vocational agriculture program offerings." This competency is taught by having each student prepare a ninety-day course of study with appropriate objectives for the overall course and individual units.

In the Planning of Instruction category, the highest rated competency was "Plan the content of a lesson." After participating in a unit of instruction on lesson planning, all majors plan a series of daily lessons. One of the lessons is taught by the student to the methods class where both written and oral critiques are given to help the prospective teacher improve the lesson content and delivery techniques.

The most highly rated competency in the Execution of Instruction area was "Give an assignment in a clear and concise manner." All students perfect this competency during their eight week student teaching program under the guidance of a cooperating teacher and the teacher educator.

An additional opportunity to develop competency in giving assignments and presenting overall lessons to high school students is available during our five-week winter session. The winter session project encompasses the placement of the student in a local high school vocational agriculture department to teach one course every day during a five-week period. This three credit project is an excellent experience prior to their full-time student teaching program. It also gives them exposure to an additional teacher and department.

In the Evaluation of Instruction area, the top rated competency was "Formulate a system of grading consistent with school policy." A special unit on test construction and grading has been added to the methods course to assist prospective teachers in developing this competency. The unit involves practice in constructing multiple-choice, true or false, and essay tests for high school students. The unit also covers systems of allocating points to tests, student notebooks, student projects, laboratory work, and FFA activities. Students are also required to develop a form for grading daily student work in settings such as the greenhouse and the agricultural mechanics laboratory.

The highest rated competency in the Student Vocational Organization category was "Provide advice for student entries in state and national FFA contests." Students are introduced to the FFA in a major unit of instruction in one of the methods classes. Since fewer than twenty percent of the students have had high school FFA experience, several projects have been developed to assist students in developing their FFA competencies. For example, all majors are required to:

1. Join the collegiate FFA chapter.
2. Serve on at least one collegiate FFA program of activities committee.
3. Assist in planning, organizing, and conducting at least one state FFA contest each semester during the senior year.
4. Attend and participate in the state FFA convention.
5. Assist in the training of at least one high school FFA chapter judging team during student teaching.
6. Actively assist with the high school FFA chapter during student teaching.

As a result of these activities, our students are better prepared to properly advise a high school FFA chapter when they take their first teaching position.

Cooperating and supervising teachers should frequently critique student teachers to provide them with evaluations of their performance. (Photography courtesy of Gilbert Goller, Professor, Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.)

Agricultural education majors gain competence in presenting lessons during a 60 minute micro-teaching exercise in their methods class.
Assessing Student Laboratory Performance

In a competency based curriculum, programs of vocational agricultural education are built on the knowledge, skills and attitudes developed by students participating in the curriculum including the school laboratory. The student is held accountable for the demonstration of specified competencies. The emphasis is on demonstrated outputs and not on participation. A curriculum that emphasized holding the student accountable for demonstrating competence in specified competencies needed for employment has a place in vocational education in agriculture.

Competency based laboratory instruction is designed and delivering educational experiences which will teach students the knowledge, skills, and attitudes needed for successful entry to employment and advancement in agricultural occupations involving laboratory work.

Student Interest

Considerable research has been done on the laboratory learning centers in vocational agriculture. As an effective learning situation, observation of its use indicates that it does stimulate and create an effective learning environment. Teacher-student and student-student interaction has been greatly enhanced by the use of laboratories.

The agricultural laboratory environment can also serve as a catalyst for more joint educational efforts within a school system. Joint planning between the vocational agriculture program, the pre-vocational program and the post secondary program can now occur since all have a vested interest in the development of student performance in school laboratories with emphasis on competency based instruction.

Community Asset

Potential also exists for joint efforts between vocational agriculture departments and agribusinesses to achieve a common educational goal. Use of the laboratories with vocational agriculture programs is almost unlimited. Students in experience programs can use the laboratory environment to help them make production decisions about their SOEP enterprise and accelerate their program.

Students can use the laboratories in many of their day-to-day tasks such as identifying skills, knowledge, and attitudes required for the successful performance of the jobs they have identified. Assessing agriculture student performance in laboratories has many implications for agricultural education programs. Flexibility, size, cost, and versatility all make laboratories a valuable addition to the teaching tools available.

Student response to the laboratory practical has been exceptionally good. The students come into the laboratory environment with immediate concerns and doubts as to their ability to perform assigned skills. They are eager to develop the needed skills and recognize the value of such. Initially, some students are fearful and reluctant to attempt the skills. This attitude is reversed when the students observe other students performing the skills which create competitiveness. Students develop a positive perception of the laboratory environment and an eagerness to obtain the knowledge, skills, and attitudes that are required in the labor force. This is evidence for the high regard and respect which employers hold for laboratory learning in vocational agriculture.

Benefits

Laboratory instruction contributes to the vocational agriculture program in several ways:
1. There is a cooperative effort between the agriculture program and community.
2. All students have a chance to participate in some way.
3. The public is aware of this phase of vocational agriculture.
4. The students gain personal development by interacting with other agriculture agencies in the community.

Public Relations

Parent involvement in the laboratory work of our school has been excellent. In the afternoon while parents are working in the lab, the students go through the laboratory greenhouse, nursery, and garden to check on their son's or daughter's accomplishments. These individual projects have also inspired the parents of students not in the program to encourage their children to seriously consider enrolling in agriculture. The laboratories also provide an excellent medium for educating parents about the agriculture/agribusiness program, including supervised occupational experience.

Finally, the school laboratory provides a scientific laboratory situation. Experiments and demonstrations are shared with the administration, parents and the community.

By Walter Jones
(Editor's Note: Mr. Jones is a Vocational Agriculture Teacher at Southeast High School, Winston, North Carolina 27104.)

Agricultural Mechanization

Student Evaluation

Students often take a path of least resistance. To prepare an adequately trained person, goals are one of the most important stepping stones to success. In developing goals, skills, successful experiences, which are ego and self-esteem primers, are needed to stimulate the student's curiosity and ambition.

Students need a continual series of small successful projects and/or learning experiences to raise their level of expectations. We must not only challenge the student but do it by presenting rewarding learning experiences to sharpen and invigorate the student's educational journey.

How does responsibility aid competency based instruction? Let us look at one method. Students in class are given a series of skills areas (projects) with each skill area having a different student supervisor.

The student has the opportunity and duties associated with the supervisor for at least two skill areas each school year. The student supervisor keeps a roster of all students in the class, and records the progress of each student in the particular skill area.

The teacher evaluates the finished project and a grade is assigned to each participating student based on a joint meeting between the teacher, the student supervisor and the student. This procedure provides a valuable learning situation for each of the students. Using this system, the teacher will not only evaluate the students' skill level, but also their managerial ability and acceptance of responsibility.

Attitudes Essential

As we all know, there are winners and losers in this game of life. A positive attitude is the number one attribute of a winner. How do we build positive attitudes? Each student must respect the teacher. Generally, the teacher must devote from this rule in order to maintain class decorum.

By John L. Sackett, Jr.
(Editors Note: Mr. Sackett is a teacher of Agricultural Mechanization at the Georgette-Hyde School, Amherst, New York 14005.)

Habits have a great deal of influence on a person's attitude toward life. As teachers, we must strengthen good habits such as being in class on time, having a project finished on time, and all the little decisions that contribute to a winning or losing attitude. The combination of these little decisions many times determines a person's attitude toward life.

It is very difficult to change students habits. But such can be accomplished with (a) adequate communication, (b) a carrot and stick approach (c) interaction with parents, and (d) a well prepared lesson plan that lets the students know what is going to happen today and next week. Evaluation of student attitudes and habits is part of every teacher's job.

The last item is values. What are values? Values are the sum of our church, school, and learned heritage. Many students have little or no church exposure and not enough values are taught in many schools. The learned route of television and the daily newspaper do not necessarily foster good values. Values are reflected in proper ethical, moral, and legal conduct. As you live, act, and conduct yourself, so shall your students respond. Teaching by example is important.

By W. J. Brown
(Editors Note: Mr. Brown is a Farm Mechanics teacher at the Union Agricultural High School, Sheline, New York.)

Students can assist each other in assuring their performance. (Photograph courtesy of Kenneth Olson, Agricultural Engineering Technology, Agricultural and Technical College, Caledon, New York 12055.)

Teachers can continuously assess the performance of students. (Photograph courtesy of Billy Harrel, Sam Houston State University, Huntsville, Texas 77341.)

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THE AGRICULTURAL EDUCATION MAGAZINE

DECEMBER, 1983
Determining Student Grades

By R. Kerry Barrick

(Dr. Barrick is an Assistant Professor in the Department of Agricultural Education at The Ohio State University, Columbus, OH 43210.)

Determining student grades is among the least exciting activities that a vocational agriculture instructor must perform. Pulling together all the information available regarding a student's performance and then attempting to assign a grade based on a pre-determined scale can be time consuming and frustrating. But it all has to be done.

Grading students is an important part of any teacher's job. Awarding grades based on performance is necessary for several reasons. The American educational system uses grades to promote students to the next higher level. Grades can be a valuable tool in grouping students to work on activities, peer teaching and mastering learning. Student placement as a part of school and after program completion often hinges upon evidence of achievement called grades. Finally, students can be motivated by grades if the grades are used properly.

Steps in Grading

Calculating grades is actually a two-part activity. Part one addresses the actual assessment of performance, including knowledge, skills and attitudes. Many guidelines have been written regarding how to assess student performance. Test construction, laboratory project score cards, work habit evaluation and point systems for leadership development are among the issues that address performance assessment (see Figure 1). Part two of the grading process is much more mundane and receives little attention. How does the teacher arrive at a grade (a number or letter) that will be recorded in the grade book and sent home on a report card?

There are six steps involved in actually computing a grade for students based on individual grades awarded in knowledge, skill and attitude assessment. Generally, the steps are appropriate in any vocational agriculture setting. The example in Figure 2 will help clarify the procedure.

Step 1. Determine Major Areas to be Evaluated.

Generally, there are four basic areas or parts of the vocational agriculture program. They are supervised occupational laboratory activities (SOLA), classroom activities and leadership (FFA). A teacher must identify the major areas to be included in determining student grades.

Step 2. Determine the Relative Weight of Each Major Area

To help in calculations, it is best to weigh major areas on the basis of 100 per cent. The example shown uses possible points based on 100, with SOLA worth 50 points or 50 percent, laboratory activities worth 20 points, classroom activities worth 20 points and FFA activities worth 5 points. The relative weights indicate, for example, that SOLA achievements will determine 50 percent of the student's grade. These relative weights can be adjusted for different classes and different grading periods if the teacher wishes.

Step 3. Calculate a Numerical Score for Each Area

By the end of the grading period, the teacher's grade book will be filled of grades. The teacher must now use those grades to determine a numerical score for each of the major areas. For example, if the four sub-areas under "Classroom Activities" are of equal value, a student may have an average of 91 on quizzes, 87 on tests, 100 on participation and 92 on the notebook for a numerical score of 92.5 for classroom activities.

Step 4. Compute a Weighted Student Score for Each Major Area

The student score, recorded in the last column of the example grade computation sheet, is determined by multiplying the numerical score (as a percent) times the points possible. Continuing the example, 92.5 x classroom activities equals .925 x 25 possible points is 23.125, the student score.

Step 5. Compute the Total Score

After a student score is calculated for each major area, the scores are summed to determine the total score.

Since this score is on the basis of 100, it could be used as a final grade in schools that use numerical values rather than letter grades for reporting.

Step 6. Convert the Score Into a Letter Grade

The final step is to find the total score on the grading scale and record the corresponding letter grade. The grading scale should be used throughout the year and may be dictated by school policy instead of teacher preference.

The six steps to determine student grades become even easier when the teacher writes a program for a programmable calculator or micro computer. Stages 3, 4, 5 and 6 would all be done by the machine, with the actual product being the student's grade.

The system of determining weighted scores for each major area can also be used within the area. The example used in Step 3 assumed that all four criteria under 'Classroom Activities' were of equal value. If the teacher wishes to weigh each criterion, then a numerical score would be computed by multiplying the score on each criterion times the relative weight for the criterion (as a percent of 100).

Summary

Determining student grades may not be the most enjoyable activity in teaching but it is important. Students need accurate feedback, schools use grades for student recognition and potential employers use grades to evaluate prospective employees. It is the responsibility of the teacher to ensure accuracy and fairness in assigning grades that reflect student achievement in the total program.
Techniques for Evaluating Student Performance

Evaluating Student Performance in Simulations

Students may also be evaluated on the basis of how well they perform in simulations. Simulations allow teachers to observe and assess students' knowledge and abilities under conditions similar to real-life situations. Teachers can design simulations that require students to apply their knowledge and skills to solve problems or make decisions. By doing so, teachers can assess students' ability to perform under pressure and in complex, real-world settings.

Summary

Evaluation is a continuous process that is undertaken for a variety of reasons. Many of the evaluation techniques described in the article are applicable to students as they assess student performance. They also illustrate the key point that the process should be designed to make decisions or perform tasks as it is just as important as the decisions made and the tasks performed through skill performance. The techniques teachers use to assess student performance must be selected according to the instructional objectives set forth and the purpose of conducting the evaluation. Use of a variety of techniques will improve the validity and fairness of evaluation results, as well as stimulate student participation in the learning and evaluation process. Perhaps students may then be led to show greater initiative in evaluation and to become active learners, identifying their own educational needs.
Evaluating Affective Development

By J. David McCracken

Evaluating affective development is an important aspect of agricultural education. The Affective Rating Scale (Figure 1) can be used to assess the level of affective development among students. The scale rates students on five categories: cooperation, responsibility, leadership, work habits, and social habits.

Cooperation: students who work well with others are rated higher than those who do not. 

Responsibility: students who complete assigned work on time are rated higher than those who do not. 

Leadership: students who influence others are rated higher than those who do not. 

Work Habits: students who work under pressure and accurately are rated higher than those who do not. 

Social Habits: students who meet people properly and respect the rules are rated higher than those who do not.

Legality of Grading

By Lee Cole and Forrest Gamberl

Grading is a crucial aspect of agricultural education. It is important to consider the legality of grading practices. The article discusses the implications of grading on students' future opportunities and the importance of fair and consistent grading practices.

Constitutional Consideration

As agricultural education programs become more complex, it is important to consider the constitutional implications of grading practices. The article discusses the implications of grading on students' future opportunities and the importance of fair and consistent grading practices.

Impacts on Students

Determining the impact of grading practices is crucial in agricultural education. The article discusses the potential benefits and drawbacks of different grading systems and their impact on students.

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Is it fair to assess non-academic performance, behavioral performance, as part of the overall course grade? Should a grade in a course represent purely academic accomplishment?

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Service or Education?

By Martin B. McMullin

(Editor’s Note: Dr. McMullin is an Associate Professor in the Agronomy Program at Virginia Polytechnic Institute and State University, Blacksburg, Virginia. He is currently on study leave to New Zealand and Australia.)

A teacher once showed a farmer how to caponize fourteen roosters, yet the farmer was not about to touch the operating equipment. The farmer hoped the teacher would finish the whole group, perhaps the farmer from having to do it.

It is difficult to separate school education in agriculture from service, yet some service has merit. On-farm demonstrations are simultaneously education and service. If farmers learn to repeat the demonstration they have been educated and the service is no longer necessary. Conversely, if farmers do not learn and insist that the teacher do the "demonstrations," a service is being performed.

When the teacher does something for a farmer, the farmer should be trying to learn. If the teacher calibrates a sprayer, the farmer should fully intend to calibrate the sprayer the next time.

Things of a service nature should not be done in the absence of the farmer. If the farmer is too busy to be present for a corn yield check, the teacher should direct him to someone who is interested in education as service.

Service to Gain Attention

Some service activities such as taking soil samples or forage samples are always appreciated. In fact, the examples given are the interest approach to a lesson on fertilization or ration balancing, respectively. In Pennsylvania, where soil tests must be purchased by the farmer, free soil tests are frequently given as a door prize at adult meetings to facilitate on-farm contact with the more conservative farmers. A free kit is given away, how to take the sample and forward it for analysis. The test result comes to the teacher who interprets it to the farmer, and hopefully the farmer will continue to listen to the teacher for individual instruction.

Community service projects by the PVA or Young Farmers are an indirect service of the teacher as is the possession of equipment purchased by the school or club. This kind of service which is generated throughout the school is leadership is desirable. Direct community service by the teacher is normally done as a member of a civic or other community organization.

Employment Service

A fully justified service is an employment service for students. Students are taught how to obtain employment, but the teacher should also make an effort to get full-time employment for the student as a service.

Teachers can keep track of who is looking for employees and who is looking for jobs without being time consuming. The employer contact is good for the teacher in that it contributes to an occupational orientation of the teacher and the program.

Withdrawal of Services

Services of long standing such as open laboratories and canning cannot be discontinued abruptly because of the ill will of those who have grown to expect the service. Even the sudden withdrawal of mechanical repair service for the school can have some detrimental effects to relations within the school. These three activities appear to be primarily service. As long as there is education to be done, education is more appropriate than service.

Bartering Service

Educational programs need commodities for which the school must pay. It is the kind that can be purchased. Teachers and students commonly prune fruit trees and will have a part in the service in return for the opportunity to practice. Another example is the building of a farm wagon for a farmer who is willing to purchase the materials, thus the educational program benefits and the farmer benefits.

Barring is common in the greenhouse operation. In return for a garden center donating supplies, the school will deliver marketable plants. By avoiding large retail sales the school is not seen as competition to community businesses.

Historically, a humorous example of bartering service for educational opportunities was the frequent practice of agriculture teachers helping put hay in haycocks in the school to have an opportunity to talk to the farmer. That practice was to the best of us now, but it happened and perhaps still does from time to time.

Summary

In the agricultural education program, education is primary, service is secondary. Service does not appear in the title of the program offered through the school although it does in the title of some other educational agencies in agriculture.

Inservice Education is Essential

By Cerecy R. Westom

(Editor’s Note: Dr. Westom is Coordinator and Professor, Agricultural Education Program, 435 General Classroom Building, University of Missouri, Columbia, Missouri 65201.)

As I think back on what agricultural mechanics (farm mechanics) was like in 1950 when I was qualified as an instructor of vocational agriculture, I see the image of small skill projects such as hay hooks, broad boards, clevises, feed scoops, S-hooks, and small woodworking projects. Welding was still a novelty and one or two welders and one oxy-acetylene outfit per laboratory, or none at all.

Power tools, both woodworking and metal working, were rare in vocational agriculture laboratories in Missouri.

The entire purpose of the parts for students to follow were crudely drawn or perhaps a photograph of an item sometimes. It required a great deal of experience before any success. No sizes or dimensions of projects were available for students to follow. Large projects were primarily of wood with some metal working involved. Standardized plans were available on several woodworking projects such as hog houses, picnic tables, and saw horses. When projects were displayed at fairs and shown through other state, it was not unusual to have many standardized woodworking projects, but metal projects ran the gauntlet of size and shape due to no one having desirable standardized plans for vocational agriculture students.

The Curriculum

In the second semester agricultural mechanics was custom made for every vocational agriculture department because each teacher put together their own course of study. No statewide curriculum was available. No one would take the initiative to develop a curriculum. Teachers, educators or supervisors condone a standardized instructional program (curriculum) for agriculture mechanics.

Each instructor was expected to survey their school service area and determine the instructional needs of the community and, in turn, write their own lesson plans. This still seems to be the case. But time is a factor here, and sometimes time does not permit when much planning can be standardized. If someone can help develop a curriculum for materials that can be used or modified by the majority of instructors, we have a tremendous time saver built into our program.

Determining Content

Inservice education for instructors of vocational agriculture in the late 40's and early 50's was spasmadic at best. Some inservice education program was organized as a joint effort between industry and the state supervisory staffs and some was conducted by teachers. In 1956, the University of Missouri-Columbia added an agricultural mechanics specialist to perform that function full time.

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Inservice Education for Inspectors of Vocational Agriculture

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Inservice Education is Essential
(Continued from Page 21)

Finding needed specimens of insects and crop diseases when needed for a particular teaching unit is a problem most teachers have faced more than once in their teaching career. Pictures and slides leave a lot to be desired in terms of clarity, color, relative size, and shape. Many times, commercial specimens preserved in vials of alcohol, decolor, distort and tend to be expensive. Dried mounts get crushed and disintegrate with normal classroom use.

George Cummins, Instructor at the Hawkeye Institute of Technology, Waterloo, Iowa, has found a way to remedy those problems. He makes permanent specimens by preserving them in clear casting resin mounts. George states that if care is taken in the preparation and curing process, the specimens will retain their natural color and detail. These qualities of the specimen permit students to study the mount in minute detail with magnifying instruments. George has used the resin casting to mount insects, crop diseases and deficiency symptoms, plus grain damage. The same process can be used to make paper weights and hot pads with embedded items of interest such as flow- ers, coins, butterflies, etc.

According to Mr. Cummins, casting resin is available at most art and craft supply stores. Some school systems have a supply on hand for art and/or industrial arts classes.

George suggests the following steps in constructing resin mounts. A variety of containers can be used: milk cartons, plastic cups, early agricultural mechanics projects on display today. They involved student projects such as was displayed at the Missouri State Fair in the early 1950's. Early agricultural mechanics projects consisted of several students working on a range of projects. The projects were displayed at the Missouri State Fair in the early 1950's. There are many intrinsic rewards for teacher educators who conduct such inservice training activities.

Instructors are motivated.

6. A better trained group of students are graduated into the community.

7. A higher quality preservice training program results due to instructors keeping current with technology.

8. Much standardization of the vocational agriculture program is accomplished by inservice education.

Inservice education has been demanded and delivered in Missouri with outstanding results in agricultural mechanics. The one real problem of inservice education is the continual stream of new faces into the profession with a zest for learning that can only be met by another series of inservice education classes. The job is never completed, just a new set of students emerge.

Reference

Water in the Soil

Water in the soil is one of the most important factors affecting the growth and development of plants. It is essential for the survival of plants and plays a crucial role in agriculture. The amount and quality of water in the soil can significantly influence crop yields and plant health. Understanding how water moves through the soil and its effects on plant growth is crucial for efficient farming practices.

The soil water capacity and other terms connected with water in the soil can be made clearer to students by following some suggestions of Leland Browning, vocational agriculture teacher at Butler, Missouri. Mr. Browning has developed and used two short demonstrations that helped his students develop a quick understanding of what they considered "big words" and hard to comprehend facts.

Pore space and its relationship to water holding capacity can be demonstrated by using 200 ml beakers, several marbles, and some sand. Filling one beaker with marbles (representing sand particles) and the other with sand (representing clay particles) simulates two types of soils. Equal amounts of water are added to the beakers. Students quickly see that although the beaker of marbles contains larger pore spaces, the clay holds more water after these beakers have been drained of excess water. The second little "trick" is to use a sponge to represent soil. First, the sponge is brought to saturation (all will hold). This represents the "saturation point" of the soil. Any more added water causes water to leave the sponge. Thus, the water leaving the sponge at that point represents "gravitational water." Next, the sponge is squeezed tightly, thus eliminating all "soil water." The sponge-soil is now at "wilting point." The water that no one can squeeze out of the soil is known as "permanent water." Residues in the sponge represents the "hygroscopic water," or water that can not be used by the plant. Thus, the follow- ing terms now have clearer meaning to the students: hygroscopic water, or water in the soil not available to plants: wilting point, or the point at which only hygroscopic water remains and plants begin to wilt; usable or capillary water, or water available to plants; saturation point, or the point at which the soil is full of water and incapable of holding more; gravitational water, or water not used by plants and which is lost due to over-saturation.

These two demonstrations can be completed in one class period. Student comprehension of some "big words" in the area of soil science can be speeded up.

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Stories in Pictures

Evaluation Has Many Facets:

Classroom Achievement

On-the-Job Performance

Personal Development

Laboratory Procedures

SOEP Practices

Records

(Photographs courtesy of Dan Gutshall, Agribusiness Instructor, Tonganoxie High School, Tonganoxie, Kansas 66086.)