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FUNCTIONAL EVALUATION IN VOCATIONAL AGRICULTURE

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The question of evaluation is a highly controversial one. On the one hand, some modern educators frequently denounce marks, grades, and promotions as being at the "bottom of dishonesty and subterfuges to get by"¹; on the other hand, educators, equally modern, look upon evaluation as the only means for intelligent modification of educational procedures.

Perhaps we, in vocational agriculture, have opportunity to be less guilty of flagrant misuse of marks and evaluation because we have more opportunities for functional evaluation. One of the most important criticisms of marks and examinations has to do with the fact that the system gives undue weight to types of school work which are artificial and unreal.² It is not that measurement as such is objected to; on the contrary there are few persons who do not look upon evaluation as a useful tool if subordinated to major purposes and not made an end in itself.

Teacher Evaluation

Continual evaluation of progress is essential in any educational activity, by both teacher and student. The teacher should make evaluations for many reasons, among which are the following:

1. To satisfy a desire for a more thorough understanding of the individual student.

2. To provide a basis for continuous modification of the course to meet the abilities and needs of the students.

3. To determine the extent to which the objectives of the course are being realized and achieved.

Progressive educators have criticized school marks because the system of grading often gives undue weight to that part of the school work that is artificial and

unreal. Much of our examining procedure is designed to test the factual knowledge the student has assimilated during a period of time and does not measure his progress in the more important objective of secondary education—the ability to adjust to the real life situations he must meet when he approaches and reaches maturity.

A teacher of agriculture may make his evaluations more functional and more meaningful by utilizing some or all of the following methods:

1. Observing the work and activities of the student in and out of the classroom.

2. Checking on the products of learning in out-of-class situations, such as farm practice and Future Farmer activities.

3. Rating techniques.

4. Tests of the essay type.

5. New type tests.

6. Standardized tests.

Various means of teacher evaluation may be formulated on an observational basis. In the study of agriculture it is highly desirable to develop ability on the part of the student to gather and organize information. In evaluating such progress the teacher may raise a problem not previously studied and announce that all available resources of the school or community may be used in gathering information about it. The methods and means used by the students and the way in which the material is organized should form a logical basis for evaluating the progress made. Similar methods of evaluation may be adopted for other objectives.

Standardized tests, provided they measure application as well as factual knowledge, may be utilized as well as essay and new type tests. The applications made of leadership principles developed in teaching may be measured functionally by participation and progress in the Future Farmers of America and other rural youth organizations.

Pupil Evaluation

It is just as important and perhaps even more so, for the student to evaluate his own progress. Testing and evaluation should always have as their real goal the rendering of help to an individual in making the most of his own life for

¹ Zirbes, Laura. "The Emotional Implication of School Practice and Tasks." Educational Record. April 1935.

² Ryan, C. W. "Mental Health Through Education." E. L. Hildreth & Co. 1938.

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THE STAFF

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himself and his community.³ While the teacher evaluates to strengthen his program, the student should do so to determine his progress and the worth of the activities to him. He should continually ask himself the purpose of the activity and why he is engaged in it. He should determine what new skills, appreciations, attitudes, and abilities he is gaining and the relations he holds to the rest of the group engaging in the activity.

A Functional Evaluation

We recognize the farm practice work of the student as a measure of the application of his learning experiences in the school. The success of the teaching program in vocational agriculture will depend not upon whether John remembers that the bulletin designated a pound of lye to thirty gallons of water as the disinfectant in the McLean system of sanitation and made an "A" in the test but

³ International Commission on Examinations at Cheltenham, England, 1936.

rather that John purchased a sow through the F.F.A. Swine Association and produced 2000 pounds of pork from the sow and marketed it through the Cooperative early enough to obtain the highest price per pound. While periodic "check ups" and evaluations are highly valuable for both the teacher and the student principally as guide posts along the way, farm practice provides a great opportunity for setting up definite goals with student participation so that we can more clearly gauge the results of his education.

It was in keeping with the above philosophy that the students in the advanced classes in the agriculture department at Owatonna High School in 1936-37 proceeded to work out for themselves a set of standards or goals for farm practice and a means of evaluating the progress made. As a class, the students studied and discussed each type of farm practice which could be profitably carried on in the community, using farm management data as to labor requirements, feed requirements, and capital investment as the basis for evaluation. The group utilized experiment station bulletins and books on farm management for sources such as given in Table I in gathering the data and soon made the discovery that projects differ greatly. They found, for example, that while the amount of labor necessary for caring for one dairy calf and one sow and litter is approximately the same, that the feed cost and cost of materials is considerably higher for the latter.

On the basis of the farm management data the students concluded that one sow and litter is about equal to three dairy calves and that a student to demonstrate equality of effort, planning, investment, and equipment with another taking a

TABLE 1*
Comparison of Composite Units of Different Classes of Livestock

Units**	Man Labor per Unit Hour	Horse Work per Unit Hour	Materials and Services per Unit	Feed per Unit			
				Farm Grown Concentrates lb.	Commercial Protein Supplement lb.	Dry Roughage lb.	Skim Milk lb.
1.00 dairy cow	160	5.0	\$ 0.70	2,100	.....	5,500	.....
0.25 " heifer	9	.....	0.03	100	.....	750	.....
0.25 " calf	9	.....	0.02	94	.....	181	550
4.50 beef cows	112	4.5	1.03	.....	.....	16,650	.....
3.33 baby heaves	33	.....	.33	7,659	1,320	2,500	.....
.67 beef calf	8	.....	.07	151	536	.....	.....
Sheep Unit	180	42.0	14.40	7,680	.....	30,000	.....
Hog Unit	180	19.0	5.80	30,450	1,450	.....	14,500
Poultry Unit	175	2.5	1.82	2,500	125	.....	1,250
Work Horse Unit	164	.....	2.00	6,000	.....	10,000	.....

* From Minnesota Bulletin 283.

** A unit is based upon the amount of man labor expended and equals 1 cow, .25 heifer, 4.5 beef cows, 3.33 baby heaves, .67 beef heifer, .67 beef calf, 5 sows and litters, 2 work horses, 60 ewes, 50 hens and 100 chicks.

sow and litter, must manage not one but three dairy calves. They discovered also that some jobs required a great amount of planning, but once the details are worked out, the execution takes relatively little effort. Securing the sow, as a job in a sow and litter project, requires a study and selection of a breed, a survey of the breeders in the community and adjacent states and a knowledge of pedigrees. The actual securing of the sow might not be more than cranking up the truck and driving to the next county.

After a discussion of the ramifications of the problem of evaluating farm practice and pulling together the loose strings, the group set up the following conclusions:

1. That it would be desirable to divide the farm practice projects as to scope and type into major and minor categories, with the former having an evaluation of 200 points and the latter 100 points.

2. That in each enterprise one-half of the total value be assigned to planning and one-half to doing the job.

3. That some minor projects, such as variety trials and so on, be assigned a relative value based upon effort, planning, and investment.

4. That each approved supplementary practice be given ten points when successfully completed.

5. That the total of all scores, for majors, minors, and approved supplementary practices determine the progress made as interpreted by the total score.

6. That progress as interpreted by the scores becomes greater in scope as the student progresses from Agr. I to Agr. II and III, as he should have increasingly larger programs of farm practice.

7. That an especially good piece of work on any enterprise may warrant and should be given a higher score than assigned by the group.

Listed below are the farm practice activities considered by the group and the categories and scope to which they were assigned. The reader is reminded of the fact that this classification is made by one group of agriculture students in a specific community and type of farming area. The chief goal desired was to arrive at a relative classification which would fit the particular needs of the group in evaluating its own farm practice program. While this classification of farm practice equivalents seemed to accomplish this at the time it was set up, there may be occasion to revise and refine it. This particular classification might or might not be suited to other areas.

MAJORS (200 points)

- 1 sow and litter
- 3 dairy calves
- 150 chicks
- 100 hens
- 100 roasters
- Dairy herd testing (entire herd, 20 points per cow up to ten)
- Alfalfa, 5 acres
- Soil Conservation
- Fat hogs, 10
- Sweet corn, 1 acre
- Dairy herd management
- Horticulture, ¼ acre
- Hybrid seed corn, 1 acre
- Farm accounts
- Potatoes, 1 acre
- Corn, 2½ acres
- Sheep, 4 ewes
- Agricultural library
- Garden, ¼ acre
- Small grain, 5 acres
- Permanent pasture (15-acre minimum)
- Farm layout
- Turkeys, 75
- Home grounds improvement
- Popcorn, 1 acre
- Young dairy herd management (4 heifers and 1 bull)
- Swine management (5 sows)
- Farm shop
- Beef calves, 3
- Orchard improvement (20 trees)
- Poultry flock improvement

MINORS (100 points)

- Dairy, 1 to 2 calves
- 50 chicks
- 50 hens
- 50 roasters
- Potatoes, ¼ acre
- Corn, 1 acre
- Beef, 1 calf
- Popcorn, ¼ to ½ acre
- Bees, 50 points per hive
- Sheep, 1 to 3 ewes
- Home garden, ¼ acre
- Orchard improvement (10 trees)
- Small grain, 2 acres
- Legumes, 3 acres
- Fat hogs, 5
- Rabbits, 10 points per doe
- Egg records
- Milk records
- Gilt
- Horticulture, ¼ acre
- Pasture (5 acre minimum)
- Turkeys, 25
- Variety trials, 50 points for each one
- Fertilizer trials, same

- Pasture (5 acre minimum)
- Turkeys, 25
- Variety trials, 50 points for each one
- Fertilizer trials, same

Recognizing item 6 of the list of conclusions, that as a student progresses he should have an increasingly larger program, the group set up the following standards for each agriculture class:

Agriculture I	Points	Letter grade
Fair (acceptable score)	400-525	D
Good	525-650	C
Very good	650-775	B
Excellent	775-850	A

Agriculture II		
Fair (acceptable score)	500-625	D
Good	625-750	C
Very good	750-875	B
Excellent	875-1000	A

Agriculture III		
Fair (acceptable score)	600-725	D
Good	725-850	C
Very good	850-975	B
Excellent	975-1100	A

EVALUATION OF A TYPICAL FARM PRACTICE PROGRAM

Agriculture I	
1 dairy calf	100
Sow and litter	200
1 acre corn	100
Herd testing	200
Supplementary	50
Total	650

Agriculture II	
2 dairy calves	100
3 sows and litters	200
5 acres corn	200
5 acres legumes	200
Herd testing	200
Supplementary	50
Total	975

Agriculture III	
Swine management	200
Dairy management	200
5 acres corn	200
5 acres small grain	200
Herd testing	200
Farm accounts	200
Home grounds improvement	200
Variety trials	150
Supplementary	130
Total	1680

It will be noted that these standards are based upon a three-year high school program. The addition of Agriculture IV would not affect the procedure involved.

As indicated in the preceding list of general conclusions, the group decided to assign one-half of the total value to planning and one-half to doing the practice. The planning of the enterprises and their approved practices constituted a large portion of the class work of the group. The doing, then, is the application of the student's learning activities in the classroom. Thus, this program is based largely upon the farm practice of the individual student. Naturally, class procedure lent itself admirably to individualized instruction based upon the needs of the student.

The breaking down of the enterprise into approved practices and the assigning of values was accomplished by committees of two, each making a study of two or more enterprises. The committees in turn discussed their conclusions with the class, and needed changes were made. The discussions evolved into excellent opportunities for the teaching of farm management principles.

Swine Management (5 sows)			
Approved Practices	Planning		Doing
	Planned	Done	
1. Flush sows before breeding	4	5	
2. Use purebred boar	10	7	
3. Provide pasture	5	5	
4. Clean farrowing pen	10	10	
5. Wash sows' udders before farrowing	3	3	
6. Put pigs on clean ground	10	5	
7. Provide clean water supply	5	10	
8. Make self-feeder	5	10	
9. Feed minerals	5	4	
10. Balance rations	10	3	
11. Creep feed pigs	5	8	
12. Wean pigs at proper time	4	5	
13. Castrate boars at proper time	4	5	
14. Fit and show at fair	10	10	
15. Market at six months, at 225 pounds	10	10	
	100	100	

An example of a project divided by the class into essential approved practices is given here.

Succeeding class periods naturally centered around the planning by the students of their own farm practice activities.

The following fall when the projects had been carried somewhere near completion, field trips were made to each student's home where the group observed, discussed, and scored the farm practice on the points planned in the classroom. Criticisms and suggestions from the group were pointed and helpful and taken in excellent grace by the student.

The teacher also availed himself of the opportunity for evaluating the program, and student suggestions for improvement were discussed by him.

This method of evaluation is based upon student needs and purposes. Its greatest merit is that it is student planned. It measures application and progress rather than factual knowledge. It is made in a natural, real life situation, the individual being evaluated by the group which, when it grows to maturity, will be the "society" of the student's environment.

Sources of Information Utilized by the Class

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