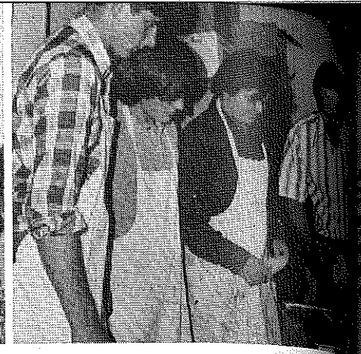
FHA Loans Help Boys Dreams Come True—James Ray Fortenberry, second from right, a vocational agriculture student at Pine High School (Louisiana) discusses his supervised farming program with, left to right, Robert Jones, FHA County Supervisor; his father Ray Fortenberry; Ronald Knight, his vocational agricultural teacher; and Mack Hurst, Assistant FHA County Supervisor. James Ray has purchased ten dairy animals through the Farmers Home Administration Young Loan Program and plans to eventually establish a dairy of his own. (Photo from J. C. Atherton, Ag. Ed. Louisiana State University)

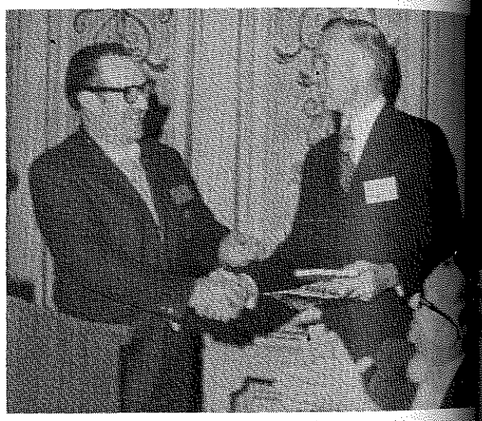


A Hedge Against the Possible Food [illegible] ages—James Magee, Sr., Vocational [illegible] culture Teacher at Slidell High [illegible] (Louisiana) instructs students in the [illegible] Preservation Center in his depart[illegible] (Photo from J. C. Atherton, Louisiana [illegible] University)

Stories in Pictures

by Richard Douglass

Let's hear it for Clifford Nelson, Vice Chairman of the Magazine's Editing-Managing Board! The Maryland Vocational Association honored State FFA President, Pete Knill (left) with a $100 U.S. Savings Bond and Dr. Clifford L. Nelson (right) with the Outstanding Achievement Award for 1973 and a clock-plaque. (Photo from James Pope, Maryland FFA Executive Secretary)

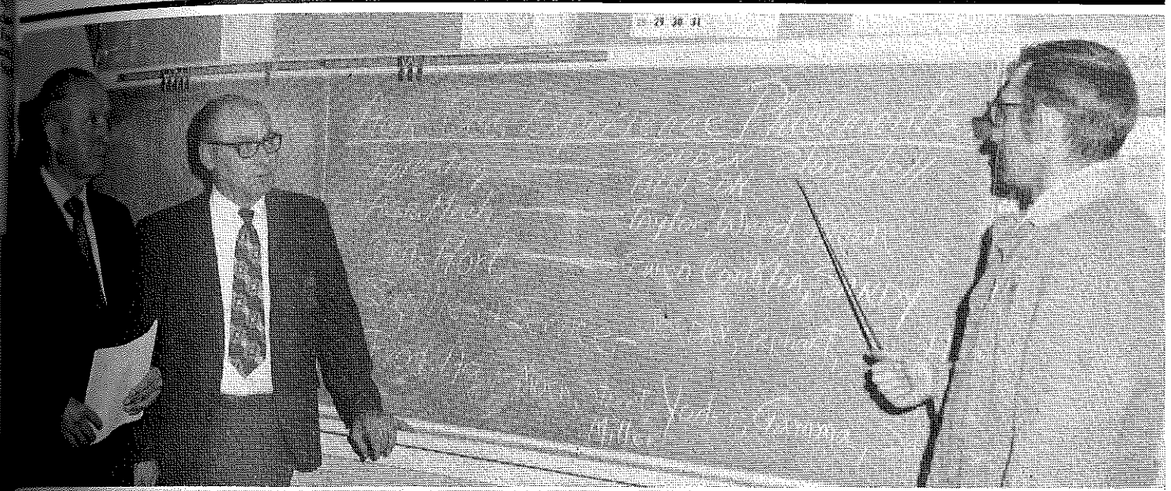


NVATA SPECIAL CITATIONS—The November 197[illegible] of the Agricultural Education Magazine was devoted [illegible] to the NVATA in recognition of the organization's 25th [illegible] niversary. The editor, Dr. Roy Dillon, University of Nebr[illegible] received a special citation at the NVATA Convention for [illegible] outstanding work as editor and for his especially outstan[illegible] effort in behalf of the NVATA. (Photo from Sam Sow[illegible] NVATA)

Vo-Ag Department Says Thanks—The Delta Vocational Agribusiness Department at Muncie, Indiana awarded an Outstanding Service plaque to a local Chrysler Plymouth dealer for providing the department with three courtesy cars to transport some of the 200 students to FFA events and field trips during the year. Pictured from left to right are Bill Gaddis, Sales Manager; John Jackson, owner of John Jackson Chrysler Plymouth; Keith Fadely, Delta FFA President, and Royce Costin, Director of Vocational Agribusiness at Delta High School. (Photo from Royce Costin)

Agricultural Education

July, 1974 Number 1



Theme—PROGRAM PLANNING AND EVALUATION

The
Agricultural Education
Magazine

EDPRESS Vol. 47 July, 1974 No. 1

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THEME—PROGRAM PLANNING AND EVALUATION

This publication is the monthly professional journal of agricultural education. The journal is published by THE AGRICULTURAL EDUCATION MAGAZINE, INC., and is printed at the Lawhead Press, Inc., 900 East State Street, Athens, Ohio 45701.

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Send articles and pictures to the Editor or to the appropriate Special Editor.

COVER PHOTOS:

High School Vocational Agriculture Teaching Staff Suggests: Planning is the Key to Effective Supervised Experience programs.
Ag instructors Henry Robinson, Luther Lalum and Steve Wilcox check over student placement in their Agri-Occupation Experience programs at Flathead High School.
Nursery manager instructs student trainee, Pennoyer, in the art of debudding carnations. Kathy is a freshman Vo-Ag student and FFA member at Flathead High School.
(Photos supplied by Dr. Max Amberson, Ag. Ed. Department, Montana State University).

Editorials

From Your Editor . . . WHOSE NEEDS?


Martin B. McMillion

How many different individuals has your adult program reached in the past ten years?

The potential adult clientele of our agricultural programs is estimated to constitute 17.4 percent of the U.S. workforce which amounts to 6.4 million workers. The adults served by our programs in 1972 numbered 257 thousand. Only one out of every 25 potential adult enrollees is served by our programs. The percent of potential enrollees who need and can benefit from our programs is not known. Unknown also is the percent of that group who want or could be caused to want instruction. The number is unquestionably high enough to cast doubt upon the wisdom of serving the same small group of farmers year after year. If the adult enrollment record of your school were examined for the past 10-15 years, how many different names would you find on the enrollment sheets? That question is especially directed to teachers who have taught in the same school for that many years. Are you guilty of starting a young farmer program as a young teacher and then growing up with them into an adult farmer program, thus satisfying the requirement or expectation for an out-of-school program? The situation seems analogous to the alleged student at Bellefonte, Pennsylvania who had satisfied his requirement for a supervised farming program with six chicken hens through four years of high school and became concerned after hearing that he had failed the senior year that his farming program might die of old age before he graduated.

How many years have you had the same group in your farm management program? Have they been in it seven or eight years and you cannot seem to wean them in order that a new group that has a greater need for farm management instruction can be helped? What did this group do to deserve continued farm management service? Do they pay more taxes or have more influence?

A physician has his regular patients, an agricultural machinery dealer has his regular customers and a lawyer has his special clients. There is a difference. We are public servants. Our adult programs, except for token tuition and fees, are financed by everybody's taxes. The needs and interests of the instructor or other education personnel should not unduly limit the number or kind of clientele who are served within agriculture as broadly defined.

If we serve the needs of individuals, are we simultaneously serving the needs of agricultural business and industry? If we serve the needs of the individual and the industry, are we also best serving society? The needs of individuals, of industry, and of society are interrelated but the interrelatedness is not so close that we can ignore the focal points of our efforts. Recent attention to the role of the agricultural industry in bringing about a favorable

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Guest Editorial . . . USING OCCUPATION BY INDUSTRY CENSUS DATA IN PROGRAM PLANNING

Glenn Z. Stevens, Teacher Education, The Pennsylvania State University


G. Z. Stevens

Economic enterprise is industry-oriented. The American occupational structure is industry-oriented. Whether self-employed or earning a salary or wage, workers identify first with their industry. To be specific, each worker is part of a particular establishment within a type of industry. The Bureau of Labor Statistics, in *Tomorrow's Manpower Needs* (8), presents a national industry-occupation matrix and other manpower data with projections to 1980.

When the U.S. Office of Education prepared to issue a *Standard Terminology for Curriculum and Instruction in Local and State School Systems* (11) a committee for each vocational education field proposed industry-oriented instruction areas. The agribusiness taxonomy was publicized, thoroughly discussed in each state, and endorsed. Widespread adoption, with flexibility appropriate to regional and local needs, has followed.

At this point, recognition should be given to an emerging awareness that many establishments are business services. For example, they are agribusiness services if a substantial part of their income is from functions performed for other agriculture/agribusiness industries. Instruction programs coded in the USOE *Standard Terminology*, and jobs coded by the Department of Labor in the *DOT*, are usefully cross-classified for all vocational-technical fields in *Vocational Education and Occupations*, 1969 (12).

A publication in 1971 of the U.S. Bureau of the Census *Classified Index of Industries and Occupations* (5) provided essential motivation for an interagency study (10) aimed at identification of a matrix of agribusiness, natural

(Continued on next page)

From the Editor . . .

balance of payments for the United States could cause us to focus more upon the agricultural industry. It could even serve as a justification for teachers to focus attention on small groups of farmers whose operations could appreciably affect our international balance of payments. Accountability in terms of economic return for investment is greatest when that investment is used on clientele who can get the most from instruction. Accountability and responsibility are not synonymous.

Guest Editorial . . .

resource, and environment industries by occupations. The list of industry groups is adapted from the *Standard Industrial Classification Manual* (1). The occupation groups parallel, but do not use the coding of, the *Dictionary of Occupational Titles* (9). The 1970 Census of Population reports: *General Social and Economic Characteristics* and *Detailed Characteristics* (6) are a source of data for state vocational education planning.

An explanation of objectives and suggested action steps in state and local surveys for curriculum decision-making and meeting needs of target groups of people is on pages 14-17 in the AVA publication *Transitions in Agricultural Education Focusing on Agribusiness and Natural Resources Occupations* (4). Advisory committees should include persons in state Departments of Labor, Commerce, Agriculture, and Education. The example for interagency cooperation was set by the National Committee on Employment Opportunities and Training Needs in Agribusiness in a mimeo report (10) that H. N. Hunsicker, chairman, sent to state supervisors.

Teachers will learn to use the forthcoming list of occupations by industries in which workers use agribusiness knowledge and skills taught in schools and colleges in counseling students in career education processes, in improving courses they teach, in job placement and advancement, and in contributing to comprehensive community education and rural development. School administrators and teachers will find significant value in much closer coordination with the Rural Manpower Service of the Department of Labor and with state and university personnel associated with the Department of Agriculture who are assigned to their counties and local areas. They will learn to interpret and use agribusiness reports of the Bureau of the Census and state Departments of Commerce.

Accountability and responsibility are not synonymous.

We should serve the clientele who need, can benefit from and who want or can be caused to want instruction and do it giving a balance of attention to the needs of the individual, the needs of society, and the needs of agriculture in the community, state, nation and the world. —MB

The Bureau of Employment Security has primary interest in this project as an aid to counseling and job placement of unemployed, underemployed, disadvantaged and minority persons who can profit from training in agribusiness knowledge and skills. The U.S. Department of Agriculture expects to use the data to focus its resources and development activities to increase rural worker efficiency and income and on consumer and marketing services.

It is anticipated that some states, and many school districts, will design and systematically complete task analysis studies of occupations in industries that will need large numbers of well-educated agribusiness workers in the years ahead. The U.S. Department of Labor, *Handbook for Analyzing Jobs* (7) provides theory, interview schedules and detailed instructions. To clarify basic terms, these definitions were developed:

1. Job: a group of positions identical in major tasks and sufficiently alike to be covered by a single task analysis." (One educational program will prepare many workers for entry employment).
2. Position: a collection of tasks making up the total work assignment of a single worker. (There are as many positions as there are workers in the country).
3. Task: one or more elements of distinctive activity in the necessary steps in performance of work by a worker. (Human effort exerted to accomplish a specific purpose).
4. Element: the smallest step into which it is practicable to subdivide any work activity without analyzing separate motions, movements, and mental processes.

Teachers who visit industries and interview workers will want to create and improve courses for persons of all ages. Performance outcomes with specific standards will

(Concluded on page

Themes For Future Issues

August —	Teacher Education
September —	School Organization and Articulation
October —	Instructional Technology
November —	Improving the Profession — the Job and the Teacher
December —	Better Teaching and Learning
January —	Urban Agricultural Programs
February —	Programs in Natural Resources
March —	Utilizing Resources in Teaching
April —	Informing the Public
May —	Teaching the Disadvantaged and Handicapped

ORGANIZED PLANNING: A MODEL

Clayton P. Omvig
Teacher Education
Department of Vocational Education
University of Kentucky

and

Steven J. Gyuro
Center for Vocational and Technical Ed.
Ohio State University

It is no secret that vocational education now operates under the old adage, "you can't beat a man with a plan." The rapid expansion and complexity of vocational education programs coupled with the cry for accountability have precipitated a movement toward systematic planning which is unprecedented in vocational education or any other phase of education. Systematic long-range and annual planning has become a necessary function if the varying needs of communities are to be effectively and efficiently met.

Before discussing a generalized planning model, which is applicable to agricultural education or vocational education at all levels, a differentiation should be made between the local application required by law and the planning process one goes through to produce the required application. The local application represents an administrative agreement regarding assurances to be met in the expenditure of funds. The objectives of the local educational agency are set forth and certain data are required to support the request for funds. Thus, the local application may be viewed as the summarized results of a larger planning process.

How does one go about systemically accomplishing this larger planning process? What are the components which need to be considered? The remainder of this article will focus on the planning process and the components which must be considered.

Planning concentrates on decision-making and represents the development of an initial set of decisions about future action. Planning is a continuous and cyclical process which requires information. The process incorporates a formal set of systematic steps which will enable the production of a planning document.

Comprehensive planning encompasses two dimensions—long-range planning and annual planning. These dimensions are interrelated, with the long-range plan being the basis for preparation of the annual plan. The unique aspects which differentiate the two dimensions of planning are presented in Chart 1.

The Process

The planning process is comprised of several components. These must be organized in a systematic manner to produce the information necessary to arrive at a set of decisions which are translated into the educational plan. Portrayed in Figure 1 is the relationship of the basic planning components with emphasis on the concept that planning is not linear, but cyclical and regenerative.

The following discussion centers on the steps in the planning process, with an explanation of what should be included in each step.

1. Assess existing conditions and project into the future. Include such aspects as analysis of manpower needs and job opportunities, need for specialized short courses and continuing education, the human resources of the community in terms of characteristics and aspirations, and the nature and availability of educational resources.
2. Determine the needs of students and adults based on the assessment.
3. Establish mission statements, goals, and objectives.
4. Analyze all possible alternative programs which could achieve the stated goals and objectives.
5. Consider what would be required

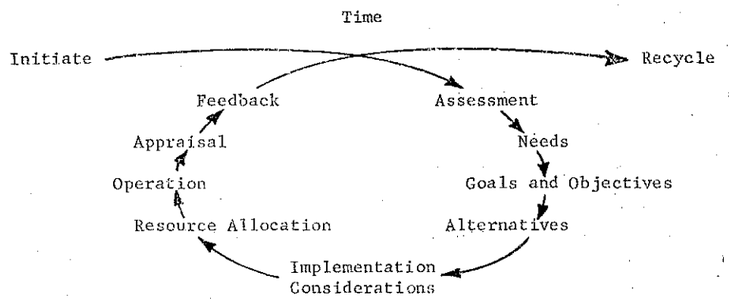
(Continued on page 6)

Chart One
Dimensions of the Planning Process

Aspects	Dimensions	
	Long-range	Annual
Orientation	Needs	Resources
Nature	General	Specific
Time Period	3 - 5 years	1 year
Ends	Direction	Accomplishments
Means	Intended functions	Actual operations
Information needs	Extensive	Focused
Uncertainty	High	Low

Figure 1

Dynamic and Cyclical Planning Process Components



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to implement the program in terms of people, money, time, facilities, equipment, materials, supporting services, and administration.

6. Allocate resources through budgeting.
7. Operate your planned program.
8. Continuously appraise your program in terms of outcomes.
9. Provide feedback of evaluation into the program planning cycle.

The following paragraphs briefly discuss each of these components.

Assessment—The purpose of the assessment component is to acquire the information necessary for needs determination. Therefore, all other planning activities are dependent on an adequate assessment. The assessment component addresses itself to four major aspects of information. These are manpower needs and job opportunities in agriculture, student needs and aspirations, availability of educational resources, and the results of previous evaluation activities. Two dimensions need to be considered for each aspect. The first is status—what is the present situation? The second is projection—what is the projected situation? The length of the projection depends upon the time line established for the plan—one year, three years, or five years. It is from these inputs that the remainder of the planning process evolves.

Needs—Following assessment, the need component can be developed. After completing an analysis and synthesis of the information desired from the assessment, a description can be developed which clearly depicts "where we are" and "where we should be." The discrepencies or gaps between these two positions form the problem areas from which the program needs can be determined. The needs, therefore, become identified conditions or situations which require the allocation of resources.

As the statements of need evolve from the planning process, the identification of constraints becomes obvious. But, these constraints should *not* be considered when establishing need. Constraints become important only when priorities are set, for priorities normally grow out of an attempt to achieve a balance between the identified needs and constraints. Considering constraints too early can deter the planning process. Resources are always scarce and, therefore, constraints are a reality which can best be handled through the rational establishment of priorities.

Goals and Objectives—Perhaps the most crucial, and difficult, component of the planning process is the establishment of statements of what the agency wishes to accomplish. This description of proposed outcomes should be established in terms of a hierarchy of goals and objectives. This hierarchy should first take the form of a mission statement, followed by broad goals, and finally translated into performance objectives. Inherent in the establishment of a mission statement is an understanding of the philosophy of the school and community regarding the program, as well as legislation and state educational policy. It is the purpose of the mission statement to establish the program's intent and describe the framework in which it is legitimate to function.

The establishment of long-range goals in terms of three to five year periods should follow the mission statement. The long-range goals provide program direction toward meeting the established needs.

Determination of performance objectives is a result of further refinement of goal statements in terms of a shorter period of time, usually one year. Objectives should focus on measurable accomplishments. The purpose of the objective is to describe the specific outcomes expected and provide a criterion base for measuring the effectiveness of the program.

Alternatives—The completion of the goals and objectives component of the planning process provides the basis from which alternative courses of action can be identified. The intent is to identify all possible methods to attain the stated goals and objectives. Existing alternatives (known methods or programs) should be reviewed for possible adoption or modification, or the creation of new alternatives should be considered. The generation of alternatives should be followed by an analysis of these alternatives. The basis for selection of an alternative, or set of alternatives, should incorporate the following considerations:

—Congruency of the alternative to the goals and objectives
—Feasibility in terms of realistic considerations of resource needs and restrictions
—Effectiveness in terms of the degree to which the alternative will produce the desired outcomes
—Efficiency with which the alternative will produce the desired outcomes.

Implementation Considerations—Implementation considerations focus around the simple questions of what, why, how, who, where, and when. Elements such as staff requirements, time, money, facility requirements, equipment and material needs, support services, and administrative support must be considered.

Resource Allocation—The allocation of resources is the final step prior to program operation. This component involves the development of a budget and procedures for fund distribution. Resource allocation normally involves two phases. The first phase is directly related to long-range planning and focuses on estimating the resources necessary to meet the established needs. This form of budgeting does not consider constraints and limitations. Rather, it realistically establishes the amount of resources necessary to fulfill *all* the stated needs. The second phase of this component addresses itself to the annual plan. This phase involves the determination of anticipated resources for actual operations, programs, services, and activities. In this case, constraints must be considered.

Budgeting takes many forms. However, it is important that it be viewed as a plan for relating expenditures to accomplishments over time.

Appraisal—Appraisal is the final component in the planning cycle, but it should be planned prior to program operation and conducted concurrently with program operation. The appraisal component involves the determination of criterion measures and indicators of success or failure that are gathered through program evaluation activities. These measures and indicators are derived from the statements of goals and objectives. Evaluation information must be analyzed to determine the adequacy of the program in meeting student needs and in relation to the program objectives.

The appraisal component must also consider the courses of corrective action which should be taken to improve the programs. It is essential that such feedback become input to the planning

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ATTAINING PERFORMANCE OBJECTIVES IN A MEATS UNIT

James LeCureux
Ubly Community H.S.
Michigan

J. LeCureux

The goal of any Agriculture Education program is the development of modern and relevant occupational skills by the agriculture student.

To achieve this end, we must first ask ourselves if our course content is relevant. After satisfying our first question, we must then ask "How can I evaluate my students with effective realistic tools?"

Vocational Agriculture has long prided itself on using realistic, practical situations in the educational process. Now, with performance objectives playing a larger role in the educational process, they become an effective tool for program and student evaluation.

How do we use performance objectives in our classroom and farm visitation situations? Teachers of Vocational Agriculture have many evaluation tools at our disposal already. For instance, with a unit on "Meats" we have market sales, fair shows, meats judging contests, supervised experience projects, record analyses, fall feeder sales and local slaughter houses to draw upon as tools to evaluate our students and our programs.

Let's take a closer look at some of these "tools" and develop a few performance objectives for each. The Michigan FFA Association has conducted a State FFA Market Livestock School and Sale at St. Johns for the past several years. The intent of the program is to provide a commercial outlet for FFA market livestock with an educational experience for each student. Each animal is graded individually and the member has an opportunity to discuss the grades with the official grader. In addition, the student will be asked ahead of time to select the "best" animal from his pen. Later in the day, a grading demonstration is conducted with member participation in a contest for each type of livestock. Finally, a commercial sale is held. The prices received are realistic for the day's market. Each student involved is seeing the "real-world" at work and is gaining marketing experience.

As a result of this activity, the student can see his animals graded, and also see how these grades affect the price he receives for his animal. Placing the market sale activity in the performance objective terms, we must start at the time the student purchased the animal. Some examples of performance objectives could be, "Select from a group of steers at a feeder sale a steer or pen of steers that will grade at least low choice according to USDA a grader."

Based on the outcome of activity at the market sale, it would be easy to evaluate the student on his success at this skill. We have with this activity something that is "real"; the content is relevant to the student and he can "see" the results. This type of experience may be more practical and more realistic than a fair sale due to the fact that the prices received for animals at the fair, and a first place award does not tell a member it's "market quality," it only tells him who's best in the class.

A method which may give a more realistic view to the conventional fair judging would be a carcass class. We could also dress-out the animal and grade the carcass according to USDA standards. Very few students ever see their animals dressed out at a fair sale. If the goal of this instruction is to provide the consumer with what they want, the student must see what he is producing.

To do a complete job and provide experience for the members, a carcass class would be held for live animals on Monday at the fair. Members could be involved in judging the animals before the official judging and then have the judge give his placings and reasons. Later in the week, an educational program could be held for the dressed carcass evaluation.

Here again, the student could be given the opportunity to judge the carcasses first. Afterwards, the grader could do the grading and give an explanation of his grades. Performance objectives could be developed for the carcass class too. For instance, "Grade each carcass to within one half of the accepted USDA grade when given five beef carcasses."

Another activity that we have at our disposal is the FFA Meats Judging contest. In preparing for the meats contest, we could draw upon experiences in the market sale and the fair carcass classes. The *Meat Evaluation Handbook* by the National Livestock and Meat Board is an excellent reference booklet. In addition, I have used the *Stockman's Handbook* and the book of *Meats* as well as slide tape series on "Careers in Animal Industry" and "Beef Carcass Judging and Grading."

For an evaluation of our meats unit,

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cycle, thereby enabling plan revision and improvement. Evaluation data serve to regenerate the total planning process, for such data become part of a new set of assessment data which allows the planning cycle to continue.

The preceding paragraphs describe one method of organizing for planning. There are others. The important thing is to adopt a system which allows the planner to identify and isolate the process components as well as see their interrelationships. There is nothing magical about the components described here. They are constantly used by most of us. But, visualizing the total process is essential. Such a process will provide us with the information necessary for rational decision making, give us a firm basis for accountability, and improve the chances for an effective education for each student served. ◆◆◆

(Stevens—from page 4)

be the starting point for curriculum committees, for in-service teacher education, and program establishment. The process is continuous, evaluation is continuous, and citizens will have greater satisfaction in life.

Speaking at Lehigh University, Grant Venn[1] made three career education recommendations well worth serious consideration for occupational programs. He said that 1) every student should have a part-time job. He meant supervised cooperative education—real experience in an appropriate, curriculum-related occupation. Venn's next point may not be, as yet, generally recognized and understood by teachers. He proposed that 2) each student should have purposeful involvement in volunteer services in the community. The intent is human relations and leadership development. The last recommendation we have heard this speaker make repeatedly, but this time stated in an interestingly different way. Venn said that 3) each graduate should be placed in an entry job that has opportunity for continued learning leading to advancement and life enrichment.

As an industrial nation, it is understandable that businesses and services require skilled workers. It has been deemed necessary that surveys and projections of employment opportunities be made continuously and used in administrative decisions to establish, increase, or discontinue vocational training programs. We have been repeatedly cautioned in the last ten years that students should have freedom to choose career goals. They may expect to take risks of future employment opportunities. To be able to re-enter a postsecondary vocational-technical school minimizes risk at unforeseen times later in life.

Uses of Census Employment Information

Both substantive analysis and methodological utilization possibilities exist. Morton (3) mentions flow and change studies of dynamic problems, new taxonomic perspectives moving away from traditional concepts and classifications, and an interest in global models and descriptive schemes and systems. Attention can be focused on educational levels attained, women in the labor force, non-whites, the old, and the young. Other approaches single out intensity of work, part-time work, cyclical indicators of job holding, and warning signals of unemployment. Worker mobility is important, not only as geographic mobility. People move both horizontally and vertically within occupation clusters. Personnel classification by knowledge and skills can contribute to flexibility and mobility. Educational programs must make these adjustments possible.

Macro data from the 1970 Census and from the BLS Current Population Survey are aggregated data. They show gross changes in employment. Mirco data give geographic coverage by states, by SMSA's, and by labor market areas. Retrieval from magnetic tapes is a computer process. Research workers must ask questions and supervise technicians who write the needed programs.

Some studies are cross sectional and others are longitudinal. All are studies of relationships, aimed at discovery and dissemination of concepts and principles. In addition to current and projected numbers of workers, occupatio... industry, there are CPS reports on work experience, ... cational attainment, dual jobholders, and school enroll... in vocational programs. Other BLS surveys yield infor... tion on overtime pay, age by vocational training, migra... out-of-school youth, duration of employment, and unemp... ment.

Still other data that we may find useful concern ... citizens, veterans, intergeneration occupational cha... hired farm workers, and purchasing intentions (cons... demand). Now, in conclusion, or rather as a starting p... for meaningful discussion, "What studies should we ini... What agencies should we consult? What help can we ... to school administrators? How can we influence ca... education, curriculum development, teacher education, ... service to students?"

State employment data from the 1970 Census of Po... lation soon will be available to teachers of agriculture ... reports from the U.S. Department of Agriculture ... Section 1 lists 18 farming and other agribusiness occupa... in which all workers in any industry require and u... agribusiness knowledge and skills. Section 2 lists occupa... in industries where all workers in the occupation use ... business competence.

It is in Section 3 that teachers in local communities ... need to supplement the Census data by making local indu... surveys to obtain numbers of workers by occupation ... require or utilize agribusiness knowledge and skills. Functi... al task analysis (2, 7) is suggested. Improved instructi... materials for career exploration, high school and ... cooperative education, and continuing career guidance ... be important outcomes.

References

1. Executive Office of the President: Office of Management ... Budget, *Standard Industrial Classification Manual*. ... Govt. Pr. Off., Washington, D.C., 1972.
2. Fine, S. A. and W. Wiley, *Functional Job Analysis*, Nos. ... The W. E. Upjohn Institute for Manpower and Employm... Research, Washington, D.C., 1971, 1973.
3. Morton, J. E. *Handbook for Community Manpower Su...* and *Analytical Potential of the Current Population Su... for Manpower and Employment Research*. The W. ... Upjohn Institute for Employment Research, Washing... D.C., 1972, 1965.
4. *Transitions in Agricultural Education Focusing on Agribus... and Natural Resources Occupations*. American Vocati... Association, Washington, D.C., 1972.
5. U.S. Bureau of the Census, 1970 Census of Population C... *fied Index of Industries and Occupations*. U.S. Govt. ... Off., Washington, D.C., 1971.
6. U.S. Bureau of the Census, Census of Population: 1... *General Social and Economic Characteristics*. PC (1) ... (by states) and *Detailed Characteristics*. PC (1) ... states). U.S. Govt. Pr. Off., Washington, D.C., 1972.
7. U.S. Dept. of Labor, *Handbook for Analyzing Jobs*. ... Number 2900-0131, U.S. Govt. Pr. Off., Washington, D... 1972.
8. U.S. Dept. of Labor, *Tomorrow's Manpower Needs*, Bull... 1737, 1769. U.S. Govt. Pr. Off., Washington, D.C. ... 1973.
9. U.S. Dept. of Labor, *Dictionary of Occupational Titles*, ... Govt. Pr. Off., Washington D.C., 1965. (next edition ... 1976).
10. U.S. Office of Education, *Employment in Agribusiness Oc... pations*. (mimeo) Division of Vocational Technical E... cation, Washington, D.C., 1973. (To be published by US...
11. U.S. Office of Education, *Standard Terminology for Curr... lum and Instruction in Local and State School Systems*. ... Govt. Pr. Off., Washington, D.C., 1970.
12. U.S. Office of Education and U.S. Dept. of Labor, *Voca... Education and Occupations*. U.S. Govt. Pr. Off., Wash... ton, D.C., 1969.

[1]Grant Venn, keynote address at the First Annual Invitational Career Education Conference, Lehigh University, April 30, 1973.

Do Objectives Confuse You?

Harold R. Matteson
Teacher Education
University of Wisconsin-Madison

H. R. Matteson

Performance objectives, behavioral objectives, drill objectives, enabling objectives, instructional objectives, educational objectives, and program objectives are just some of the terms encountered in literature used to describe objectives. Since the "objective" movement began more than a decade ago, it seems to be in vogue to invent a new term for existing types of objectives. Is it any wonder why many vocational educators in agriculture at all levels are confused and concerned regarding the proliferation of terms used to describe various types of objectives?

This confusion raises the question, "Is there a way of looking at objectives which might, at least in part, alleviate the problem?" The remainder of this article will be devoted to the discussion of this question.

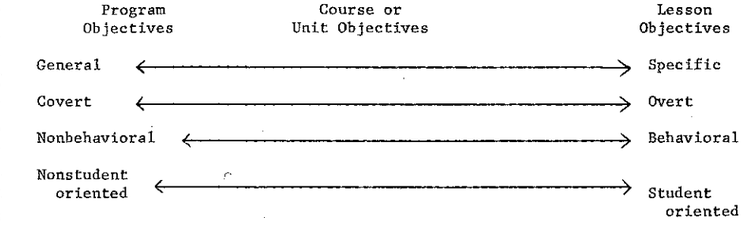
Philosophy Regarding Objectives

One of the first steps an educator can take to minimize confusion regarding objectives is to clearly identify what he believes to be the purpose of writing objectives and what will be gained (if anything) in the process. It has been my experience that most vocational agriculture instructors have written a set of behavioral objectives for each unit they are teaching because their administrators have requested that they prepare their curricula for accreditation purposes or, in some cases, for their advisory committees or school boards.

Although the practical reality of these reasons for writing objectives cannot be denied, it is my belief that the "process" of formulating a set of objectives, whether they be program, course, unit, or lesson objectives, is generally more important than the "product" obtained. The process of formulating objectives should be an insightful experience in and of itself. This process should cause a teacher to raise such questions as: 1) What is the nature of the clientele toward which my instructional program is directed? 2) What levels or types of behavior am I seeking from my students? If an instructor, when teaching animal nutrition, states as one of his objectives—"that each student would be able to balance a ration for his father's dairy herd"—then he must decide upon the types of learning experiences that will develop adequate knowledge and comprehension of this subject before his students can be expected to balance the rations. 3) What criteria will I be using for evaluation? 4) What evidence will I expect and accept for determining student success?

These and many other questions should arise regarding what should be included in the total instructional program; the relationship between what is taught from day to day, from month to month, and from year to year; and the relationship between the occupational experience program, the FFA and daily classes.

It is my contention that too often these questions are never considered by a vocational agriculture instructor because his major focus is developing a "product" which will pass the regional accrediting agency or pacify an advisory committee, administration, or school board; and after which the "product" is generally found buried deeply in a file cabinet or gathering dust on a bookshelf.



A Framework for Analyzing Objectives

As we plan curriculum and instruction in vocational education in agriculture, we generally deal with three types of objectives. These are program objectives, course and/or unit objectives, and lesson objectives.

The major problems encountered as we begin to develop each of these objectives are deciding how a program objective should be different from a course or unit objective and how a course or unit objective is different from a lesson objective.

To alleviate these problems, at least in part, I am suggesting four criteria which might be used as guides for differentiating between objectives at these three levels. These criteria are general versus specific, covert versus overt, nonbehavioral versus behavioral, and nonstudent oriented versus student oriented.

A program objective tends to be general, covert, nonbehavioral and nonstudent oriented in nature. A lesson objective, on the other hand, is specific, overt, behavioral, and student oriented.

The following diagram expresses schematically the relationship between these four criteria and the various types of objectives.

Exactly where the program, course or unit, and lesson objectives will be specifically placed along the continuum will depend on a number of factors. For example, a program objective would be quite general for a high school vocational program in a rural-urban area

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THE ROLE OF PROGRAM EVALUATION IN PROGRAM PLANNING

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Planning requires that decisions be made. Program evaluation provides the needed information, because program evaluation is the process of gathering and analyzing those data necessary for appraising alternatives.

Planning, both annual and five-year, is essential for improving vocational education. However, we must know *where we are* before planning can be properly accomplished. Again, program evaluation provides this very important information, for the purpose of program evaluation is to improve the educational program.

Program evaluation is a cooperative undertaking of all those concerned with improving vocational education. This means that the local teacher as well as the administrators must be actively involved. This also means that students, former students, employers and the lay public must have a part in the evaluation of the local vocational education program.

The extent to which the needs of *all* youth and adults are being met must be determined. The three major aspects of vocational education—orientation and exploration, occupational preparation and consumer and homemaking education—must be considered while stressing the regular, disadvantaged and handicapped, and adult students to be served. Program evaluation, therefore, must be a systematic procedure which places emphasis on the total offerings of vocational education by the school division [district] as well as the individual vocational programs.

Current planning strategies include a five-year plan which is updated each year. A program evaluation should be conducted each year to provide the data for appraising the alternatives necessary to update the five-year plan. The annual program evaluation, due to its time-consuming nature, cannot be a thorough, indepth procedure. This does not mean, however, that such an evaluation should not be conducted. Once each five-years, a comprehensive program evaluation should be conducted which delves into the philosophy and objectives of the program, the extent to which the objectives are being met, the curriculum, the teaching-learning process, the use of advisory councils, the research and evaluation activities, the learning resources, the supplies and equipment, and the facilities.

If program evaluation and planning on an annual basis are to be accomplished as stated above, we must begin with program standards in the form of guidelines. The present program can then be rated by each vocational teacher on the extent to which it meets these guidelines. The guidelines should include standards related to the objectives of the program and the performance objectives used in the classroom, the needs of the students, the program completions, the instructional materials and the equipment and facilities. The following are examples of the guidelines used for the evaluation of vocational programs in Virginia:[1]

> Measurable performance objectives based on the requirements of the occupation or vocation are used in all courses.
>
> Practices and situations found in business and industry are replicated or simulated in the classroom or laboratory.
>
> Equipment, materials, and facilities are available to support the multi-media approach to instruction.
>
> All instructional facilities are of adequate size to provide for safe and orderly and effective instruction.

The rating scale for the guidelines includes four levels: major improvement needed, improvement needed, program meets standard, and program exceeds standard.

The rating given to each guideline by the teacher provides the basis for listing the major strengths and major weaknesses of the program. The first step at the individual teacher level is for the teacher to list his recommendations for improving the vocational education program.

Decisions by committees and individual input by teachers are important in evaluation. The ratings of the guidelines, the listing of the major strengths and weaknesses, and the recommendations for improving the vocational program developed by the teachers form the basis for the update of the five-year plan.

Committees should be established at the department, school and division levels. Teachers, supervisory personnel and a representative of the administration should be included on each committee. The use of advisory councils becomes an important part of the evaluation procedure at this stage. Each committee should have an advisory council to assist it in making the recommendations for the respective levels.

Through the use of this series of committees, the data supplied by the teachers can be analyzed along with additional evaluative data from the various administrative levels to reach sound decisions regarding the possible alternatives available to the school division. Systematic program evaluation has a very important role in program planning; in fact, it may be viewed as providing the foundation upon which planning is built. ♦♦♦

*Dr. Elson is the principal developer of the *Annual Local Evaluation of Vocational Education*, Division of Vocational Education, State Department of Education, Richmond, Virginia.

1. Division of Vocational Education. *Annual Local Evaluation of Vocational and Technical Education*. (Richmond: State Department of Education), pp. 7-11.

IS YOUR VOCATIONAL AGRICULTURE PROGRAM ADEQUATE?

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J. J. Albracht

Evaluation studies of occupational education programs have largely indicated that graduates with occupational education obtained their jobs sooner than the non-occupational education graduates, and that they held their jobs longer, and had a lower unemployment rate. In addition to the higher wages which the occupational education graduate received, there appeared to be other societal benefits for occupational education programs. Benefits included more holding power of students, reduced vandalism and juvenile delinquency, and more motivation for further schooling on the part of the students with occupational education. However, even with favorable evaluation reports for occupational education programs, the dissemination of the results have not been widely implemented.

In recent years Congress has asked for more funds for occupational education. In order to insure an orderly and sound development of occupational education programs, Federal legislation contained provisions for the careful evaluation of occupational education programs and required that a comprehensive evaluation be made of total program effort every five years. Thus, there is a great need for and interest in the evaluation of occupational education programs.

Webster had defined evaluation as the process of determining or judging the value of something. Evaluation is complex. Evaluation involves a process extending over a relatively long period of time. The evaluation process may be divided into two separate entities: measurement, and evaluation. Measurement involves an objective assessment of the progress made toward the accomplishment of predetermined objectives. The evaluation phase is subjective and involves value judgments of the changes to be made as a follow-up of the measurement.

There is obvious agreement that evaluation is important and essential. It is rather difficult to achieve consensus as to the best methods for evaluation. The evaluation process or the results of evaluation pose a threat to the individuals involved in the programs being evaluated. One method of evaluation centers around a community self-study. This approach helps to alleviate the fears of individuals being evaluated because they participate in the process of evaluation. It is usually easier to attain consensus as to program objectives, measurement of objectives, and the interpretation of the results when the self-study method of evaluation is employed. The North Central Accrediting Agency uses the self-study approach in its evaluation procedures.

Some educators prefer to have outsiders evaluate the accomplishment of predetermined objectives of occupational education programs. Their contention is that outside evaluators could be more objective and more decisive in their conclusions and recommendations. Evaluators who prefer this method frequently prefer standardized objectives rather than objectives which are determined by a self-study group in a particular community. Other educators prefer outside evaluators to assess the accomplishment of the objectives of occupational education programs which were determined by the members of self-study committees. The North Central Accrediting Agency incorporates the latter method in its evaluation procedures.

Members of specialized firms for evaluation and representatives of some universities are making cost/benefit and cost/effectiveness analyses of the worth of occupational education programs. The main problem with the cost/benefit formula is that all benefits and all costs must be converted to a present value. Since occupational education programs involve a considerable duration of time for evaluation, the cost/benefit ratio becomes an estimate of value. The cost/benefit model is stated as follows:

Cost/Benefit

$$\text{Model} = \frac{\text{Benefit in \$}}{\text{Cost in \$}} = \text{Ratio}$$

If the ratio is greater than 1.0 there is a positive benefit. If there is more than one alternative program the one with the greatest positive ratio is chosen.

The cost/effectiveness model includes the cost and benefit figures in dollars and the non-economic benefits in raw form. Non-economic benefits include such factors as the trainees' knowledge, employers' rating of program, holding power of program, and increased motivation for further schooling. The formula for the model is stated as follows:

Cost/effectiveness model =

$$\frac{\text{Benefits in \$ plus non-economic factors}}{\text{Cost in \$}} = \text{Ratio}$$

Careful consideration must be given to the *process* and the *product* of occupational education programs. The *process* refers to the inputs of the teacher, the student and resources in the instructional program. Obviously as much built-in quality control as possible should be maintained. It is essential that the teacher be well prepared and use appropriate teaching techniques. It is also essential that adequate instructional materials and equipment are available and used, and that the students are interested.

However, *process* evaluation alone is not sufficient for assessing the value of occupational education programs. The student, whether he graduates or not, is the *product* of the instructional program. It is imperative that the *product* be included in the evaluation process. The student or the *product* should be well prepared technically for his occupational placement. In addition, the student should be able to advance in his chosen occupation by additional schooling if he so desires.

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An Urban Agriculture Programs

*Parker V. Foster**
Program Evaluator, Vocational Education
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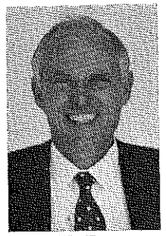

P. V. Foster

Agriculture, as the only "missing link" of the six traditional vocational disciplines, was started in the San Diego, California school district in 1967. The concept at that time was that a program would be instigated at two centralized locations in the city; one of them located in a basically middle class neighborhood and one in a neighborhood of a more modest economic and sometimes different cultural backgrounds. These two locations would be known as district centers and would each admit students from the six high schools within its own service area. The fact that one of these centers was located on a site contiguous with the city's only "adjustment school" led to special problems of its own — all since resolved.

The point is that vocational agriculture (primarily horticulture) was made available, for the first time, to all senior high school students within a large urban complex — the second most populous in the state of California. To say that the first years were an instant success would be a modification of the facts. The first year, a single instructor taught the class at each location (15 miles apart), and started building the physical facilities from scratch. A modest growth by the second year dictated the need for a second teacher, so that each center could have its own program. This pattern continued for the next three or four years with a small but steady increase in student interest as well as acceptance by the school and lay community.

During the past year, the growth in students and in course offerings has been dynamic. From a single two-hour horticultural offering at each site, the total program has blossomed into the following types of classes; offered at one or both of the locations:

Horticulture (Basic and Advanced)
Ornamental Horticulture Mechanics
Floriculture and Related
Small Animal Care
Veterinary Aide
Landscape Maintenance and Design

Other courses have been planned and will be offered as soon as practicable.

All of the listed classes have been proposed as a result of sound research based on California's 12 functions of vocational education. That is, job market surveys, population needs, etc. seemed to demonstrate the need for each particular type of class within the urban context in which the system operates.

Another factor that undoubtedly was a contributing force to recent expansion has been the cooperation with the San Diego County Regional Occupational Program (ROP) which has strongly influenced local vocational education in recent years. This "alternative delivery system" has provided financial help and a strong impetus for expanding agriculture, as well as other occupational classes within the metropolitan school district. Thus, the City Schools now have, in addition to their own resources, the backing of the ROP with its funding as well as its ability to draw students from many locations and diverse backgrounds including adults.

A greatly expanded urban program, with its multiple funding, has created a mandate for a comprehensive evaluation system. Such a system has been formulated under the direction of the District's program evaluator for vocational and career education. This plan is based within the State Plan's major goals for vocational education 1) employability, 2) career awareness, and 3) articulation with continuing education.

The evaluator examines the teacher perceptions, the student perceptions, employer reactions, cost-benefit ratios, number of disadvantaged students served, and other aspects of the program — all based on goals and measurable objectives which have mutual agreement with all parties concerned.

At the time of this writing, the final outcomes of the current evaluation efforts are unclear. Preliminary estimates would tend to show that the concept is moving forward and that the program is "healthy." This is testimony to the assistance rendered to each other by two distinct educational jurisdictions (City Schools and County ROP) and the one comprehensive *Urban Agriculture Cluster* that has resulted from the welding together of these two separate, but mutually compatible delivery systems. ♦♦♦

(Albracht—from page 11)
It is also important for the *product*, as a worker, to be satisfied with his employment and that he function adequately in civic, social and leadership roles.

A form that has been useful in assessing the *process* and *product* of occupational education programs in Kansas gives major consideration to the employment success and satisfaction of the graduate. The questions, to which several alternative answers are listed, are: (1) What is your present employment status? (2) How satisfied are you with your present job? (3) How closely related is your job to your occupational course? (4) What is your present wage rate? (5) How well did your occupational training prepare you for your present job? (6) What education have you had beyond high school? (7) How satisfied are you with your leadership developments? (8) How satisfied are you with your civic responsibilities? (9) Have you held leadership positions in the following areas? (10) How satisfied are you with your job security? ♦♦♦

*Dr. Foster evaluates the total vocational-career education system in San Diego's K-12 district and is a former agriculture teacher in that city.

DATA COLLECTION: A Must For Post-Secondary Evaluation

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L. Erpelding

Post-secondary agriculture and natural resources teachers and program administrators are among the busiest people in the world. They teach day and night classes, advise students, recruit, attend faculty and committee meetings, sponsor student organizations, supervise students placed on-the-job, conduct a community relations program, administrate, and evaluate their programs. EVALUATE PROGRAMS? Too often the response is, "Gosh, I would like to evaluate my program, but I just don't have the time."

Unfortunately, evaluation is often equated solely with the massive data collections and reams of typewritten reports required by the accreditation agencies and its visiting team every few years. About everyone who has participated in this type of evaluation would agree that the resource time indeed becomes a most valuable commodity. As a result, evaluation becomes a dreaded task. Evaluation can become a much more appealing activity if data collection is scheduled throughout each and every year. More importantly, tremendous program benefits can accrue from having data available annually. Malfunctions in curriculum, instruction, recruiting, facilities, etc., can be identified and remedied before more serious problems arise.

The data collection system and schedule implemented in Ohio to gather evaluative information about agricultural technician programs has had a five-year history of success. The collection procedure involves a series of five instruments: an enrollee's report, second year student report, survey of early leavers, employers' report of graduates, and a graduate survey.

Enrollee (first-year student) information was collected two to three weeks following the beginning of classes. This instrument was designed to provide a detailed description of the new student's educational, occupational, and personal background. Another questionnaire component sought to determine attitudes toward various work situations.

The personal and attitudinal information provided can be used to determine the appropriateness of the introductory courses and possible conflicts or barriers in meshing the individual with the technology. The results might indicate students entering the program have a greater depth of knowledge in the technology than former students have had, thus the introductory course should include more advanced content. The attitudinal section can be designed to provide specific help in counseling the new student in relation to his chosen technology or occupation within it.

Enrollees can also provide valuable information for evaluating the recruiting program. Why did the student enroll in your post-secondary program? Who made the largest impact upon the student's decision to enroll? Other pertinent questions can be structured to analyze your recruiting efforts.

The Second Year Student Report completed by students in April was designed to allow those students about to graduate the opportunity to appraise the program. This report concentrated on curriculum assessment and employment. A self-inventory of personal qualities and knowledge of the technology was included. Which components of the program do students see as the *most* and the *least* valuable in their area of employment? Most students have completed an internship or on-the-job experience, so their assessment is based on participation in the academic program and realistic occupational experience in the technology. Items were also included to determine problems in job hunting, percent of students who will have full-time employment after graduation, and strengths and weaknesses of the job placement assistance available to students nearing graduation.

An analysis of information collected from the Second Year Student Report will reveal that certain students either elected or were forced to terminate study in the program. This group identified as early leavers can provide valuable information regarding the modification of program elements. Their input may result in program changes which might help reduce the number of future dropouts. Or, the findings may indicate that students are being trained for successful entry into their chosen occupations after partial completion of the instructional program.

The Survey of Early Leavers was distributed in July. This timing permitted obtaining information from dropouts who may have left the program only four months earlier to as much as 21 months earlier. Some of the questions which proved to be very helpful were: What was the major reason for leaving? Do you feel the decision to leave was a wise one? If so, why? Was the program helpful to you? Are you employed? If so, what is your job title and where are you employed? If you left jobs, why?

The Graduate Survey was completed in July by former students who had graduated during the previous year. The 14-month lapse between graduation and completion of the questionnaire allowed the individual to enter and generally make some advancement in his occupation. This experience enabled him to assess the post-secondary agricultural program in relation to his success or lack of it on

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(Erpelding—from page 13)

the job.

Some of the items resulting in valuable evaluative data were concerned with occupational status and responsibilities, experiences and program components beneficial and nonbeneficial to job entry and advancement, and strengths and weaknesses in personal and technical competencies. Items were designed to directly or indirectly assess the relevance of the educational program to the occupation.

The Employers' Report of Graduates was distributed so that the employer would evaluate the post-secondary program and graduate at the same point in time as the former student would complete the Graduate Survey. The employer was asked to respond to items concerned with: technical competence and personal qualities: a comparison of the performance capabilities of the graduate with other employees; additional training provided on the job; and employment matters, such as salary, expected salary, and anticipated job title in five years.

Employers and graduates provide extremely valuable answers to questions such as: Are facilities and equipment used in the post-secondary program relevant to the needs of today's industry? Which components in the program need to be changed to allow graduates to be more successful? Do graduates possess the desirable personal and technical competencies? These questions dealing with program process and product must not be ignored if post-secondary programs are going to continue to grow and to be successful in their unique educational mission.

Figure 1 illustrates the data collection process. Timing of the various phases may need to be altered to conform with enrollment dates, graduation dates, and other schedules and conditions unique to the local institution.

The process discussed and illustrated should be considered one component of the total evaluation program. Additional assistance from local evaluation teams and external evaluators from the profession is required for a full-fledged assessment. The data collection process, however, embodies several of the widely accepted principles of evaluation. 1) The philosophy, goals, and objectives of the post-secondary agricultural program serves as a basis for the data collection activity. 2) Instrument items are designed to assess and appraise the processes and product of the program. 3) Evaluation is continuous. 4) All persons concerned or affected by the program should participate.

Information collected should be shared with the program's advisory council. The data will provide tremendous assistance as the council carries out its evaluatory function. The information can be extremely useful in providing rationale for program changes and justification for [illegible] alterations.

Is your program producing [illegible] quality of product needed in the market? Which components in [illegible] program should be changed to [illegible] graduates be more successful in [illegible] jobs? How do those people most closely associated with your program rate [illegible] effectiveness? For the answers to these and other pertinent questions about your program, plan to start your [illegible] data collection system this [illegible] October. ◆◆◆

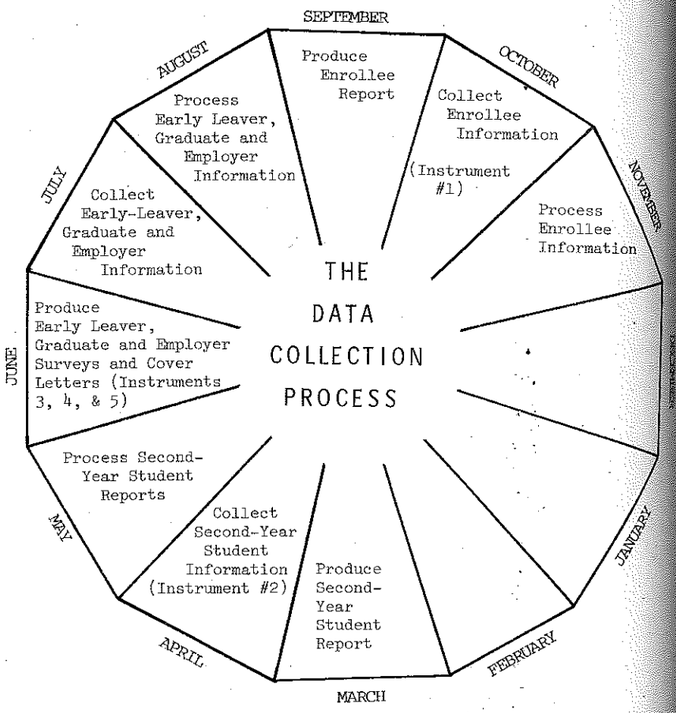

FIGURE 1

INFORMATION - - A CRITICAL ELEMENT IN EVALUATION AND PLANNING

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J. D. Oliver

Evaluation and planning are essential if vocational education is to be responsive to the needs of students, industry, and society. Evaluation provides a means for determining where programs are in relationship to goals and objectives. Planning involves making decisions about future courses of action with heavy reliance being placed upon the results of evaluation. The success of both evaluation and planning is greatly dependend upon one critical element—the availability of valid, reliable, and timely information.

Concern about the information needs of vocational education decision makers has greatly increased in recent years. Perhaps this has resulted from the increased scope and complexity of vocational education programs permitted by the Federal legislation of the 1960's. As programs continue to grow and pressures for accountability continue to increase, the information needs are expected to grow proportionally.

To provide the needed information, a systematic approach is increasingly being used. This has brought about the development of management information systems (MIS). When applied to education, an MIS provides the administrator with the information needed to make decisions. Such decisions may relate to administration, evaluation, or planning.

While an MIS for vocational education may be custom designed to fit the needs of a state, locality or other area, most systems contain certain common elements. The components of a system being developed in Virginia, known as the Vocational Education Management Information System for Virginia, will be considered here.[1] These components furnish information in several areas:

1. Student enrollment by program and program information. This includes the name, address, social security number, grade, sex, and age of secondary students. The school in which the program is offered is identified and the program is designated by a course code and Office of Education Code. Students who are disadvantaged or handicapped are reported as such and it is indicated if the program is especially designed for these students. Co-operative students are so designated. At the end of the school year, termination or completion information is collected for each student. The information for adults is collected in summary form.
2. Follow-up of former students. Information is collected regarding the status of former students and their attitudes toward the program. More specifically, this deals with whether the students are employed, are in the military service or are continuing their education. For those who are employed, data are collected on the relationship between their job and their training, the wages they are earning, the location of the job and how well their training prepared them for the job. Finally, the former students are asked to evaluate their school with regard to selected items.
3. Personnel resources available. This includes professional personnel, their training and qualifications. Such information may currently be available in the state department of education of each state and simply requires adaptation to the needs of vocational education.
4. Facilities and equipment available. Information is needed on the number of students that can be trained in a given facility, the quality of the facility, the availability and quality of the equipment and the present utilization of these resources. A study is underway to develop procedures for gathering such data.
5. Financial resources available. Data on funds currently available and expected to be available from various sources are needed. The cost per student in various programs and various options is needed.
6. Manpower demand and student needs and interests. Manpower demand data are generally provided by the employment commission in each state. In a few instances, states have developed and/or funded systems for gathering such data. Additional work is needed on methods for collecting valid and reliable information on the needs and interests of students, especially secondary students.

The system under development in Virginia will provide information that is primarily useful at the state level. However, much of the information will also be useful in local decision making. MIS development in Virginia as well as in other states has been greatly facilitated by the use of modern electronic data processing equipment.

A system with components such as those described above should provide the information needed in determining if the state-wide goals and objectives have been met. The system provides information in the three major categories which is needed for planning. These categories are (1) resources available (facilities, personnel, and dollars), (2) the needs and interests of students, and (3) the demand for manpower.

Vocational education faces monumental challenges in meeting the needs of its present and potential clientele. A properly developed MIS should provide the information needed for improved decision-making and thus a greater probability that the needs of the clientele will be met. ◆◆◆

[1] This system is being developed as a part of the Vocational Education Evaluation Project of which the author is director. This project is sponsored by the Division of Vocational Education, Virginia State Department of Education and the Division of Vocational and Technical Education, Virginia Polytechnic Institute and State University.

(LeCureux—from page 7)

a small scale meats contest could be run. Performance objectives could be worked into this test—for instance, "given 25 retail cuts of meat, identify each by naming the individual cuts according to accepted meat standards." Another objective might be: evaluate and rank four hams from most desirable to least desirable according to the procedure outlined in the *Meats Evaluation Handbook*. Still another might be: determine the yield grade of a carcass based on the dressed weight and the dressed carcass within one full USDA yield grade. Many more objectives could be developed for a unit on meat.

To be a successful producer of meat, a farmer must be more involved than just producing it. He must be able to select good feeders, maintain a good feed program and know when the animal is finished so it will bring him the top price. With a complete follow-up, more data could be secured on production measures. Rate of gain, feed efficiency, and feed cost percent and return percent could be used to compare feeding methods, selection of animals and management. With the addition of grades and carcass data, a more complete picture of production efficiency could be obtained. The outcome of this unit of instruction is a stud... knowing selection, management, fe... ing, marketing and business anal... skills.

We have long prided ourselves ... agriculture educators on using pra... cal situations in our instruction. S... the goal of Agricultural Educa... is the development of occupatio... skills by the student, we must use "re... situations in our evaluation process.

Realistic, practical instruction ev... ated by using realistic practical p... formance objectives leads to the s... cessful development of occupatio... skills by the agricultural student. ♦♦

(Matteson—from page 9)

having a broad scope in terms of the heterogeneity of the clientele being served and in the variety of courses being offered. However, for a young farmer program in the vocational technical school where the focus of the program is agricultural production and the clientele are only those individuals who are beginning a vocation in production agriculture, an objective would be more specific.

A question often asked by instructors when examining the above diagram is, "Does this mean that all program objectives are general, covert, nonbehavioral, and nonstudent oriented? The answer to this question of course is NO! It is quite possible that a program objective be general, overt, nonbehavioral, and student oriented. What is important to remember at this point, however, is that a course or unit objective is located on the continuum in a position equal to or to the right of the program objective for each of these criteria. Thus, in this particular case, the course or unit objective would be more specific (than the program objective), overt nonbehavioral, and student oriented; the lesson objective would be specific, overt, behavioral, and student oriented.

Conclusion

"Do objectives equal confusion?" ... the question that remains. Unfor... nately in many instances, this situati... does persist. It is my contention, ho... ever, that agriculture instructors w... are confused by objectives could ... their situations more clearly if th... placed more emphasis on the "proce... rather than the "product" of develo... ing objectives and if they used so... means such as the scheme describ... previously for formulating and co... paring functional program, course, u... and lesson objectives. ♦♦

BOOK REVIEW

THE ADVANCE OF AMERICAN COOPERATIVE ENTERPRISE: 1920-1945, by Joseph G. Knapp. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1973, 646 pages, $9.95.

The cooperative movement in America has allowed the food and fiber producers of this country to excercise a degree of control over the pricing and marketing of their products and the securing of needed production inputs.

Joseph Knapp in THE ADVANCE OF AMERICAN COOPERATIVE ENTERPRISE: 1920-1945 outlines the perilous situations that were thrusting the country into the depression and how the cooperative movement responded as a counter thrust in improving the farmer's position. Knapp has chosen the format of dividing the book into three basic sections.

Section 1 provides a concise explanation of such topics as: development of commodity marketing; actions by the American Farm Bureau Federation; the support from the Federal Government, including Presidential encouragement, Congressional action and court rulings; development of the Federal Farm Board and its operation; the progress in cooperative credit and insurance; and the formation of the American Institute of Cooperation in 1925.

Section 2 provides the reader with a study of the response by the cooperatives to the impetus of "The New Deal" from 1933 to 1940. The effects of such governmental agencies as the National Recovery Administration, the Agricultural Adjustment Administration, the Farm Credit Administration, the Tennessee Valley Authority, and the Rural Electrification Administration are explored.

Section 3 details the impact of WW II on American cooperatives. The methods whereby the cooperatives gained tremendous national respect are explored. The "gearing-up" for their anticipated post-war problems as well as the attacks from the anti-cooperative movements are also explored in the final chapters.

Dr. Joseph C. Knapp has spent considerable time and effort on the book. This volume is the 8th book on cooperatives that Dr. Knapp has authored. He has been ... volved with cooperatives in research ... education functions since 1920 and serv... as administrator of the Farmer Cooperat... Service of the U.S.D.A. from 1953 until ... retirement in 1966. There is probably ... better qualified person to author a book ... the American Cooperative Movement.

This book is written in such a manne... to make it easily understood and useful ... a reference tool for high school or colle... students. Others interested in cooperati... could use the book to provide them w... research information or historical inform... tion on the development of cooperative... The content and quality of this text ma... it one of the most comprehensive volumes ... its type in print today.

A book on the AMERICAN COOPERA... TIVE ENTERPRISE IN MODERN ER... 1946-1976 will complete the three volu... series on cooperative history planned by ... Knapp. The first volume, published in 19... is entitled THE RISE OF AMERICA... COOPERATIVE ENTERPRISE: 16... 1920.

George A. Hubbe... Ag. Occupations Te... Hastings High Scho... Hastings, Michigan

A Follow-up of Technical College Graduates

Anthony Kuznik
University of Minnesota Technical College
Crookston

In 1966, a new kind of institution appeared in Minnesota higher education, the University of Minnesota Technical College in Crookston. Collegiate-technical education is conceived by the institution as that education which contains two-thirds of its programmatic courses in technical education and one-third in general education. This two-year college has shown steady growth in enrollment since its inception; and a sister institution, the University of Minnesota Technical College in Waseca, has started. It is an appropriate time to evaluate the outcomes of the Minnesota collegiate-technical education concept.

For the purpose of this study and because of the newness of the college at Waseca, only the technical college at Crookston was analyzed. According to the college's testimony statement for the Minnesota Senate Education Committee, the chief mission of the college is "to prepare individuals for future employment at the mid-management or semi-professional level of employment in the broad fields related to the food and fiber industry, as well as services to rural homes and communities." Approximately one-half of the college's 750 students major in agriculture with the rest scattered in various related majors (Hotel, Restaurant, and Institutional Management, Business, or Home and Family Services). It would appear that student outcomes in relation to the college's mission statement could be construed as follows:

1) Are the graduates obtaining positions in their prepared-for career paths?
2) On the basis of salary, are the graduates progressing within their prepared-for career paths after they obtain their initial employment?
3) Is there evidence of a commitment to rural America in terms of student outcomes? For example, are students obtaining employment in rural communities? It should be noted that through programs, workshops, courses, etc., the college has attempted to demonstrate its commitment to rural service.

To answer these and other questions, the University of Minnesota, Crookston student affairs staff conducted a survey in which all of its graduates through 1972 (N=476) were requested to complete a questionnaire designed to obtain information about: 1) The graduates present occupational status. 2) The positions, job title, employers, and salary patterns of the graduates. 3) The relationship between the preparation the graduates received at the college and their present jobs. 4) The population of the community that the graduates work in or near.

In addition, the college placement office conducted a survey intended to query every 1972 graduate (N=105) to secure information about: 1) Their occupational status. 2) Their source of employment (if employed). 3) The community in which they had secured employment (if employed).

Questionnaires concerning all graduates were completed by 55 percent of them in Spring, 1973. The study concerning the 1972 graduates reached 100 percent of them.

Results and Discussions

Sixty-nine percent of the 1972 graduates went into immediate employment, 25 percent transferred to four-year institutions, with the rest either entering military service, getting married, or transferring to an institution of higher education that is less than a four-year college. The part of the study concerning all graduates revealed that 80 percent of the responding graduates were employed while 14 percent were presently attending another institution of post-secondary education.

It was evident that the college was meeting its stated goal in terms of graduates obtaining positions within their studied-for career paths because 93 percent of the 1972 graduates that chose to enter the labor market were employed in the field they had studied. Although one out of every three graduates had changed jobs, it was found that 82 percent of the total graduates were still employed in the career path they had prepared for at the college.

> *One-third of the migration from the prepared-for career area occurred within the natural resources field.*

Approximately one-third of the migration from the prepared-for career area occurred within the natural resources field. This might be explained from the facts that the natural resources field is traditionally lower paying and opportunities for advancement are somewhat limited. According to job titles, it appeared that only 12 percent of all graduates were not employed at the mid-management or semi-professional level.

According to the data pertaining to salary, the average initial salary of the University of Minnesota, Crookston graduate was $6,259. This was deemed acceptable by the college after considerating the facts that (1) the sample included many 1968 and 1969 graduates, (2) the college is comparatively new and just beginning to acquire a reputation, (3) 18% of the sample was female, and (4) many of the graduates were employed in rural settings. Progress within the career path was indicated by the fact that the average graduate at the time of the study was making $8,259 per year, an

DOES AG INTEREST MEAN AG ENROLLMENT?

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S. M. Curtis

Eighth graders declared interests in taking a course in agricultural subject matter does not necessarily result in enrollment in 9th grade. Of 2376 eighth grade students in 18 Pennsylvania school systems administered the *Agricultural and Biological Interest Inventory* during the winter of 1971, 1497 indicated a desire to enroll in one or more courses in agricultural science. Six months later, 221 students actually enrolled in 9th grade agriculture classes. In an attempt to ascertain the reasons for this situation, the interest scores of students responding "yes" and "no" to future enrollment in agricultural classes are compared to the interest scores of those who actually enrolled. Furthermore, teachers were asked to identify from among those 221 students enrolled, those considered to be educationally disadvantaged on the basis of reading scores and in class performance. In total, 153 students were identified by teachers as belonging in the educationally disadvantaged category. Teachers and schools in this survey are participating in a 3-year project to improve instruction for the educationally disadvantaged[1,2].

This data must be observed in light of the survey norms[3] for interest in agriculture — a score of 116 or higher, high interest; 83-115, moderate interest; and less than 82, low interest. Data are presented in Table 1. It is observed that students responding "yes" to agricultural courses had a higher mean total interest score (107.9) than those responding "no" (82.1). The "yes" responses averaged in the moderate agricultural interest range while the "no" responses bordered on the low interest end of the scale. The interest scores, as might be expected, of students actually enrolling in agriculture classes in ninth grade located in the high interest category (127.8). Part scores for animal, plant, mechanics, and business interests followed the same pattern as the total mean score.

The enrollment of only 221 of the 1497 students indicating a desire to enroll in agriculture courses merits further discussion. Several possible explanations exist. One deals with the curricular structure of the agriculture programs in the 18 schools surveyed. In most of these schools agriculture is offered on an all or nothing basis; that is, students must enroll for one or two periods per day in ninth grade, and for two periods per day in tenth through twelfth grade. There is little opportunity to enroll in a course in agriculture specifically devoted to an interest area only.

Secondly, the enrollment deals with ninth grade only. It is possible and likely that some students who expressed an agricultural interest in eighth grade will enroll in agriculture courses some time from tenth through twelfth grade.

Thirdly, the data illustrate that the mean scores for those who enrolled was higher than the scores of those "yes" respondents who chose not to enroll. From this it can be assumed that those who enrolled had a stronger agricultural interest than those who did not enroll. Coupled with this explanation is the fact that the agriculture courses offered in high schools have a vocational orientation. This may serve to deter those students with avocational agricultural interests from enrollment in vocational agriculture classes.

A fourth consideration is that the *Agricultural and Biological Interest Inventory* measures agricultural but not other subject-area interests. Very likely, many students have competing high interest areas that had precedence over agriculture when making course selections. In addition, the total score is a summation of part scores measuring four facets of the agricultural industry. No doubt some students were able to realize these interests in courses other than agriculture.

Finally, the male-female mix has to be considered. Of the 2376 students surveyed, 1281 were boys and 1095 were girls. Nine hundred eighty-seven boys and 510 girls made up the 1497 total of students who responded "yes" to agriculture courses. However, in the schools surveyed, no girl enrolled in agriculture in ninth grade. Although an increasing number of girls do enroll in agriculture classes in Pennsylvania each year, the total is still small (342 for 1972-73), and most of these are in horticulture classes in vo-tech schools. Social pressure, both from students and teachers, tends to reduce the number of girls opting for agricultural classes.

Another consideration is the large percentage (69%) of the total ninth grade agriculture students whom the teachers consider educationally disadvantaged. That is, two or more years behind their grade level in basic skills and unable to succeed because of this deficiency. This estimation differs sharply from the 19 percent educationally disadvantaged reported by 137 teachers in Pennsylvania in 1971[2]. It is equally important to note that the interest scores of educationally disadvantaged students entering ninth grade agriculture were not different from their classmates. Hence, it is evident at least for 1972-73 that the ninth grade agriculture students in the 18 schools surveyed have a high percentage of educationally disadvantaged students and a high interest in agriculture. One can only speculate that the more favorable teacher attitude toward disadvantaged students generated by this project has resulted in increased enrollment by such students[4].

The effect of father's occupation on student preference and choice was also observed. These results are tabulated in Tables 2 and 3. Previous studies have indicated that father's occupations, although decreasing in importance, still have a relationship to students interests and occupational choices[5,6]. In this study, the correlation of student interest in agriculture as evidenced by the part scores and total scores on the *Agricultural and Biological Interest Inventory* to father's occupation was not significant, ranging from -.06 for mechanics part score to -.16 for animal part score. Some interesting results do show up, though, when the interest scores of students showing an agricultural interest are stratified by father's occupation. Three categories of father's occupations were used: farming, agricultural non-farm, and non-agricultural. Information about father's occupation was available for 1202 of the "yes" respondents.

Significant differences occured in student interest scores among the 1202 students responding "yes" to agriculture courses when scores are stratified by fathers' occupation. All four-part scores as well as the total scores were significantly higher for those students whose fathers are farmers. No significant differences in scores were apparent among the students whose fathers were employed in non-farm agricultural occupations and non-agricultural occupations. Comparisons were much different, however, for those students who actually enrolled in agriculture classes in ninth grade. Fathers' occupation had no bearing on the scores (Table 3). For all three groups, the student interest scores averaged in the high interest area of the norms. There were no significant differences among the three groups.

Fifty-five of the 100 students whose fathers are farmers chose to enroll in the agriculture course in ninth grade. The mean interest score for those who enrolled was 126.5 while the score for the 100 in the sample was 127.8. For the non-farming agriculture group, only 10 of the 87 students enrolled in agriculture. The mean interest score for those 10 was 131.3, considerably higher than the 105.2 recorded for all students in this category.

In the non-agriculture occupational group of fathers, 156 of the 1015 students expressing interest in an agriculture course enrolled. The mean score for the 156 was 128.0 compared to 108.8 for the total group.

Thus, it can be concluded that among the students who responded "yes" to agricultural enrollment, those who enrolled had higher interest scores than those who did not enroll. The

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Table 1. Summary of *Agricultural and Biological Interest Inventory* scores of eighth grade students responding "yes" and "no" to possible enrollment in agriculture classes as compared to students who actually enrolled in ninth grade.

Interest Area	Yes	No	Enrolled	Educationally Disadvantaged Enrolled
N	1497	834	221	153
Total Score	107.9	82.1	127.8	131.6
Animals	26.3	20.4	30.5	32.4
Plants	28.2	23.0	30.5	31.1
Mechanics	26.6	18.9	35.6	36.6
Business	26.8	19.9	31.1	31.7

Table 2. Mean Interest Scores of Students Responding "Yes" to Agricultural Courses Stratified by Father's Occupation.

Father's Occupation	N	Total	Animal	Plants	Mechanics	Business
Farming	100	127.8[a]	31.5[a]	31.9[a]	34.3[a]	30.1[a]
Ag non-farm	87	105.2	24.3	25.6	29.7	25.5
Non-agricultural	1015	108.8	24.8	27.2	27.2	26.3

[a]Significantly different at .01 level from other two categories by analysis of variance.

Table 3. Mean Interest Scores of Students Enrolled in Ninth Grade Stratified by Father's Occupation.

Father's Occupation	N	Total[a]	Animal	Plants	Mechanics	Business
Farming	55	126.5	30.7	30.3	34.9	**30.7**
Ag non-farm	10	131.3	31.5	28.2	38.5	**33.1**
Non-agricultural	156	128.0	30.4	30.8	35.7	31.1

[a]No significant differences.

(Kuznik—from page 17)

increase of approximately $2,000. Male graduates were making almost $3,000 more per year than were female graduates at the time of the study.

Male graduates were making almost $3,000 more per year than were female graduates.

It should be noted that the graduates perceived a strong relationship between the education they had received at the college and their present jobs. For example, 35% described this relationship as "high" while 8% described it as "low" and 22% indicated it as "very high" as compared to 7% who indicated "none." The remaining graduates indicated there was some relationship between their education and their present position.

According to information secured from the college Admissions Office, *54%* of the 1972-73 students admitted to the college came from communities of less than 2,000 people, *79%* from cities less than 10,000 and only 2% from cities with 50,000 or more persons. *Thirty percent* of all employed graduates were in communities of less than 2,000, *66%* were in communities of less than 10,000, and 19% were in communities of over 50,000. Seventy-seven percent of the employed 1972 graduates remained within Minnesota with one-half of those who left the state were employed in eastern North Dakota. On the basis of these data, it is evident that the college is fairly successful in placing its graduates within rural areas.

In summary, collegiate-technical education in Minnesota is accountable in terms of student outcomes. Students who come from rural areas find positions in the career paths they prepared for at the college, and the large majority of these positions are in rural America. ◆◆◆

FLORIDA PROJECT AGRICULTURE - - BASIS FOR IMPROVING INSTRUCTION

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Legislators and others responsible for the funding of vocational programs want to make sure that monies appropriated are used expeditiously and wisely. They want to be assured that the funds allocated for vocational programs actually contribute to achievement of the purposes and goals which they were intended to promote. Because of these concerns, agricultural educators are sometimes asked some rather probing questions. For instance, legislators might ask if Vocational Agriculture, long exulted throughout rural America for its progressive methods and for its pragmatism in general, where teaching and learning are concerned, is really worth the price—does it meet the requirements of the student and his potential employer? "Do the existing curricula and teaching methods," they ask, "actually provide the student with the knowledge and skills required of him at the job entry level?" "Do they give him the special competencies he needs in order to find gainful employment?" These are good questions and they need to be answered honestly and objectively.

Most, save only a few of us whose backgrounds are so firmly anchored in the soil—in production agriculture—that our hearts refuse to accept what our minds tell us is true, are ready to concede that new programs and new methods of instruction are needed. Requirements in the world of work are different from what they used to be and vocational programs must change accordingly. What is the basis of such change and where should it begin?

The Beginning Point

Like those of other states, agricultural educators in Florida have been concerned with the problems of curriculum relevancy and better methods in teaching for quite some time. Operating in a vacuum of largely outmoded legislation, however, and comfortably conditioned also by the tra- tional agricultural programs of fo- years, very little seems to have b- done about these problems until ra- recently. It was probably not until passage of the National Vocati- Acts of 1963 and 1968—perhaps e- later—that the impetus for current search in these areas actually deve- ed.

On January 1, 1971, with a gr- of federal funds made availa- through the Florida Department Education, the Florida Project A- culture Applied Research Study tentatively approved and funded took almost a full year of prelimin- planning however, before the pro- was given the green light and organi- to move ahead. During this plann- phase and after much discussion number of rather basic conc- evolved. The first of these was based the premise that there were two b- essentials of fundamentals which to be achieved before training progra- in vocational agriculture, now offici- known as Agribusiness and Natural R- sources Education, could be improv- Essential number one was that pres- and future manpower requirements the different segments of the agri- tural industry had to be determin- Essential number two was that knowledge, skills and competencies quired of persons preparing to se- the different industry segments—p- duction agriculture, supplies and vices, ornamental horticulture, etc.- —had to be identified. The first these essentials was believed necess- to determine program priorities for facility planning; the second determining curricula requirements instructional content.

Several other concepts were agre- upon during the planning phase of project. Among these was the need

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a monitoring system to keep the find- ings of the study current with man- power demand changes. Finally, the methods and procedures that would be followed in conducting the study were determined and outlined.

Currently, the manpower demand data portion of the Florida Project Ag- riculture study is completed. In short, and without breaking the data figures down into their constituent county and area elements, the study showed the fol- lowing: Approximately half a million skilled and semi-skilled workers were required in the total agricultural in- dustry in the state of Florida in 1972. Of this number, production agriculture required the most personnel. Its de- mand was for around 237,000. Ornа- mental horticulture was second with a total manpower requirement of 61,824; agricultural products came third with a requirement of 28,158; and agricultural supplies and services was fourth with a requirement of approximately 17,000.

Building upon this manpower de- mand base established by the study, the next step was to identify the com- petencies and essential skills required of those preparing for work in each of the different agricultural industry seg- ments. These were partially determined through the efforts of some eighteen different industry task forces that at- tempted to define competencies re- quired of those seeking employment. Some good information was assembled by the task force committees for the different segments of the industry with which they were concerned. Generally speaking, however, the information assembled was not sufficiently specific to be useful as a valid basis for the writing of either behavioral or per- formance objectives. Attention is now, therefore, being directed to the identifi- cation of specific tasks and job respon- sibilities required of those employed in the different segments—seven in all —of the total agricultural industry. Once these specific tasks and job re- sponsibilities are determined, perfor- mance objectives will be written. They will be assembled in catalog form and distributed to the various Departments of Agribusiness and Natural Resources throughout the state. Each performance objective will consist of (a) a verb denoting the behavior or performance expected of the student, (b) the condi- tions under which the student will per- form and (c) a statement of acceptable performance standards. Once distri-

buted, it is hoped that they will be put to good use by agricultural educa- tors in carrying out their teaching as- signments to assist students who are interested in qualifying for employ- ment. Hopefully, through these means, teaching and learning efficiency can be improved with profit to both the student and his potential employer.

Initially, certain agricultural educa- tors in Florida, the writer among them, believed that the time and energy re- quired in writing and cataloging per- formance objectives could not be justi- fied. In fact, they believed that tasks, assuming that sufficient care and effort were taken in their identification, would probably serve just as well as performance objectives as a base for skill teaching and learning. This point of view, however, seems to have under- gone a lot of study and rethinking in recent months. Attitudes and under- standings have changed and perfor- mance objectives are now considered by most agricultural educators in Florida, though not all, to provide a most desirable base for improving teaching and learning. Given below are some of the facts which have seemingly contributed to this change in point of view and attitude.

First of all, the stage had already been set for the use of performance objectives in conducting instructional programs prior to completion of the Florida Project Agriculture manpower data study. An earlier study known as the Vocational Assessment Project with a catalog of performance objectives as its primary focus was completed by Dr. Glen Shinn and associates in about March of 1973. This catalog of per- formance objectives was made avail- able to a limited number of Florida vocational agriculture teachers where instructional programs included orna- mental horticulture. Received with a certain amount of enthusiasm by most of these teachers, the climate for ac- ceptance of our subsequent proposal to move into performance objectives for all vocational programs was na- turally much better than it might other- wise have been.

Still another factor influencing Flor- ida's decision to go the performance objectives route was the organization of two consortia. One of these was a national consortium confined strictly to agricultural education; the other a consortium of states in the southern region, embracing all vocational educa- tion programs. Both consortia were in- terested in developing catalogs of per- formance objectives in the interest of better teaching. Participating states were to identify relevant tasks, writing performance objectives for the industry segments in which they are most in- terested, making them available to other states on an exchange basis. Flor- ida was invited to join these consortia choosing turfgrass management, land- scaping and floriculture as major areas of interest. Recognizing the amount of time that could probably be saved through these cooperative ventures, we were happy to join. While the goals of these consortia are still a long way from being realized, catalogs of perfor- mance objectives can probably begin to make an impact on the training pro- grams of cooperating states by the beginning of the fall term of school in 1974.

Florida's decision to make the changeover, adopting performance ob- jectives for use in its instructional pro- grams in vocational agriculture, how- ever, is based on much more than a recognition of the time and energy that could be saved by participating in the consortia. Performance objectives are seen as about the only satisfactory means by which existing demands for competent personnel in Agribusiness and Natural Resources Education can be met either now or in the future. Without such catalogs to guide them and left to their own devices, it is be- lieved that teachers are unlikely to plan their programs with sufficient care to meet these demands. For one thing, vocational agriculture teachers general- ly lack the time to do this kind of plan- ning. Especially, they lack the time to accurately assess the skill requirements needed in the different areas of Agri- business and Natural Resources Educa- tion. Also teachers sometimes lack the experience required in preparing the necessary evaluative criteria by which specified skills and competencies can be effectively measured. Performance ob- jectives, assuming that they are well conceived and adequately prepared, should go a long way in eliminating these and other associated difficulties. They should make it possible for both the teacher and the student to better work together concentrating on high priority areas with no time lost in the

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(Curtis—from page 18)

lone exception was the group whose fathers' occupation was farming. Actual student enrollment as a percentage of those expressing interest, according to father's occupation, was 55 percent farm, 11.5 percent other agriculture, and 15 percent non-agriculture.

In summary, the data on these students shows that only a small percentage of the students who expressed interest in agriculture classes while in eighth grade enrolled in an agriculture class in ninth grade. For this one year, at least, and in the 18 schools surveyed, 69 percent of those who enrolled were educationally disadvantaged. Students who enrolled had significantly higher interest scores than those students who responded "yes" but did not enroll. Finally, the students who enrolled, regardless of father's occupation, had similar interest scores. ◆◆◆

1. S. M. Curtis, S. M. McFadden, and T. Byrd, Jr. "Teachers Respond to the Disadvantaged," *Agricultural Education Magazine*, May 1973.
2. S. M. Curtis, *Second Annual Report*, Education in Agriculture for the Educationally Disadvantaged, Project No. 19-2005, Research Coordinating Unit, Pennsylvania Department of Education, July 1973.
3. R. Walker and G. Z. Stevens, *Agricultural and Biological Interest Inventory* Interstate, Danville, Illinois, Penn State Scoring Key.
4. S. M. Curtis, "Successful Teaching Among Slow Learners Changes Teachers Views," *Science in Agriculture*, Ag. Ex. Station, College of Agriculture, The Pennsylvania State University, Winter, 1974.
5. Bernard M. McAlister, "Curriculum Selection and Success of Tenth Grade Girls as Related to Selected Ninth Grade Characteristics," VDS Monograph Number 9, The Department of Vocational Education, The Pennsylvania State University, March, 1973.
6. Jerome T. Kapes, "The Relationship Between Selected Characteristics of Ninth Grade Boys and Curriculum Selection and Success in Tenth Grade," VDS Monograph Number 2, The Department of Vocational Education, The Pennsylvania State University, August, 1971.

Evaluation of Beginning Agricultural Education Teachers

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Performance of the beginning teacher in agricultural education programs is an important criterion to the satisfactory development of his teaching career. As many teacher educators in agriculture well know, the performance of the beginning teacher during the critical first year is a very significant measure in the developing career of the young teacher. If he has had a "good" year, the beginning teacher looks to the second and subsequent years with increased poise, confidence, and enthusiasm. A satisfactory performance during the first year of his teaching experience also builds a very favorable relationship between the beginning teacher and the school administrator as well as other staff members in the school system. Continued employment in the school district is usually assured following satisfactory performance during the first year teaching experience.

Evaluation of the performance of the beginning teacher is necessary and essential. But who should evaluate the teacher? What evaluative criteria should be used? What additional data may also be considered in the evaluation? The Agricultural Education staff at Washington State University was concerned with answers to these questions.

The Study

Washington State University in cooperation with the Coordinating Council for Occupational Education, Olympia, Washington conducted a study to evaluate the performance of beginning teachers.[1] The evaluative instrument that was developed consisted of fifteen selected performances or categories of teacher activities.

1. Fiscus, Keith E., *Evaluation of Selected Performances of Beginning Teachers in Agriculture and Natural Resources Education.* Staff Study, Washington State University, Pullman, Washington — 1973.

TABLE 1
EVALUATION OF SELECTED PERFORMANCES OF BEGINNING TEACHERS IN AGRICULTURE AND NATURAL RESOURCES EDUCATION

Beginning Teacher _____ Date_____

Evaluated by _____ Title_____

School _____

Please circle the number to the right that indicates your best judgment of the performance of this beginning teacher, using the following code:

1. Excellent
2. Considerably above average
3. Slightly above average
4. Slightly below average
5. Considerably below average
6. Ineffective

List of Selected Performances	*Evaluation*
1. Communicating and articulating with the school administrators and instructional staff.	1 2 3 4 5 6
2. Determining community and individual student needs.	1 2 3 4 5 6
3. Demonstrating competence in the agricultural subject matter.	1 2 3 4 5 6
4. Planning and directing student learning experiences.	1 2 3 4 5 6
5. Establishing and maintaining student discipline.	1 2 3 4 5 6
6. Establishing and maintaining student rapport, and motivation.	1 2 3 4 5 6
7. Organizing and working with advisory councils.	1 2 3 4 5 6
8. Planning, organizing, and advising FFA activities.	1 2 3 4 5 6
9. Planning, developing, and supervising student's occupational experience programs.	1 2 3 4 5 6
10. Providing guidance, placement, and follow-up of students.	1 2 3 4 5 6
11. Developing programs of student recruitment, career exploration and awareness, and program promotion.	1 2 3 4 5 6
12. Developing and maintaining instructional facilities.	1 2 3 4 5 6
13. Keeping departmental records and making assigned reports.	1 2 3 4 5 6
14. Administering, supervising and coordinating the activities of department.	1 2 3 4 5 6
15. Planning and establishing professional growth and development	1 2 3 4 5 6

TABLE 2
Rank Order and Scores of the Evaluative Items as Scored by High School Principals and Beginning Teachers

	Administrator's Evaluation		Self Evaluation	
Item[2] *Number*	*Rank Order*	*Score*	*Rank Order*	*Score*
1	11	2.63	6	3.00
2	12	2.68	7	3.00
3	1	2.00	2	2.57
4	6	2.53	12	3.14
5	15	2.83	8	3.00
6	7	2.53	3	2.57
7	8	2.53	13	3.42
8	4	2.37	1	2.28
9	9	2.54	4	2.71
10	13	2.73	9	3.00
11	10	2.58	14	3.42
12	5	2.37	15	3.42
13	2	2.25	10	3.00
14	3	2.25	11	3.00
15	14	2.73	5	2.71

2. See Table 1 for teacher performances associated with item numbers.

Twenty-eight beginning teachers were selected for the study. The evaluative instrument was mailed to the beginning teacher and to his high school principal. The returned surveys from twenty-seven beginning teachers were used for the study.

Twenty-seven evaluative surveys were analyzed. The t test was used to analyze comparative data. The Duncan's Multiple Range Test was used to identify the items of selected performances with signficantly low scores and significantly high scores.

Table 2 contains the rank order and the coded scores for the administrators and the self-evaluation of the beginning teachers.

The beginning teachers tended to score themselves nearer the average score than did their administrators.

The scores from the administrator's evaluation tended to show a wider range of variation than did the scores from the self-evaluation of the beginning teachers.

The Duncan's Multiple Range Test identified five performance items on the administrator's evaluation that had significantly low scores. These are listed below:

Item

1. Demonstrating competence in the agricultural subject matter.
2. Keeping departmental records and making assigned reports.
3. Administering, supervising, and coordinating the activities of the department.
4. Planning, organizing and advising FFA activities.
5. Developing and maintaining instructional facilities.

There were eight performance items on the beginning teacher's self-evaluation that were identified as significant items by the Duncan's Multiple Range Test. Five items had significantly low scores and three items had significantly high scores. The performance items with the scores that were significantly low were:

1. Planning, organizing and advising FFA activities.
2. Demonstrating competence in the agricultural subject matter.
3. Establishing and maintaining student rapport and motivation.
4. Planning, developing and supervising student's occupational experience program.
5. Planning and establishing professional growth and development.

The performance items with significantly high scores on the self-evaluation were:

1. Organizing and working with advisory councils.
2. Developing programs of student recruitment, career exploration and awareness, and program promotion.
3. Developing and maintaining instructional facilities.

The performance of beginning teachers in agricultural education programs reflect the effectiveness and the need for revision in our teacher education programs, since they were our students only one year ago. What could possibly be a more pertinent source of program evaluation in teacher education than our former students and the schools that hire them? ◆◆◆

(Morrill—from page 21)

pursuit of subject matter that is not particularly relevant.

Some Problems in the Use of Performance Objectives

While it is believed that there are many advantages to competency based instructional programs for teaching agricultural education, it must be conceded that the system is not without its problems. Certainly it should not be regarded as a panacea for curing all instructional ills. As is true of other systems, effectiveness in the use of performance objectives depends in large measure upon the instructor, upon his dedication and upon his ability to provide incentives that motivates the learner. It depends too upon the student and upon his attitudes toward the school, the teacher and the relevancy and meaning of the materials presented to him.

This means that the concept of teaching by performance objectives requires a selling job at all levels. It is unlikely to have any particular advantage over other techniques of teaching unless it is enthusiastically received and adopted. The teacher who makes apologies for the system is almost doomed to failure before he begins.

Still another problem is that instructional costs involved in competency based programs, at least initially, are likely to be greater than they would be for traditional instruction. Teacher loads may have to be somewhat reduced and there are likely to be increased requirements for instructional materials and, especially, for training equipment. For instance, how can the competencies required for employment at the job entry level on the golf course, for sod production or for other turfgrass management areas be effectively taught without the availability of reel type gang mowers, as well as numerous other pieces of rather expensive equipment? Such machinery appears to be absolutely necessary for effective instruction and skill acquisition. At least some of it, however, can probably be made available through the planning and activation of well planned work experience programs.

Finally, there is the problem of improving our teacher education programs. Most of us tend to teach much the same way we have been taught, patterning our procedures to those of recognized models. Moreover, under the stress of time we tend to follow the lines of least resistance, doing it the easiest and quickest way, forgetting that where skill learning is concerned, this is usually not the best way. The law of practice applies here and the practice must be the kind that will provide the conditioning required for acquiring good habits in performance rather than bad ones.

These and other related areas carry some strong implications for better teacher education programs. For instance, there may need to be increased emphasis on subject matter (ornamental horticulture in Florida for an example). Skills can hardly be transmitted to the student unless the teacher has them. Without these skills, catalogs of performance objectives are likely to be placed on the shelf to gather dust and to mock us in our expressed desires to meet the educational needs of the dynamic and ever changing world in which we live. ◆◆◆

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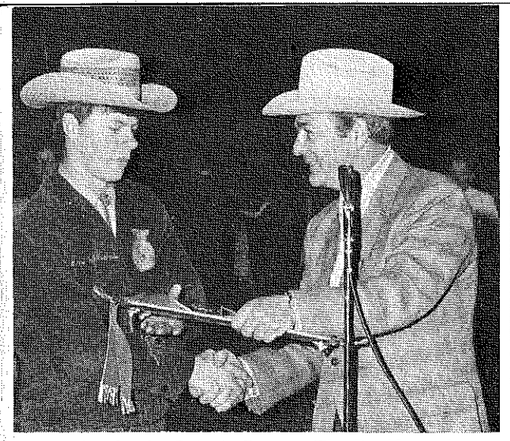
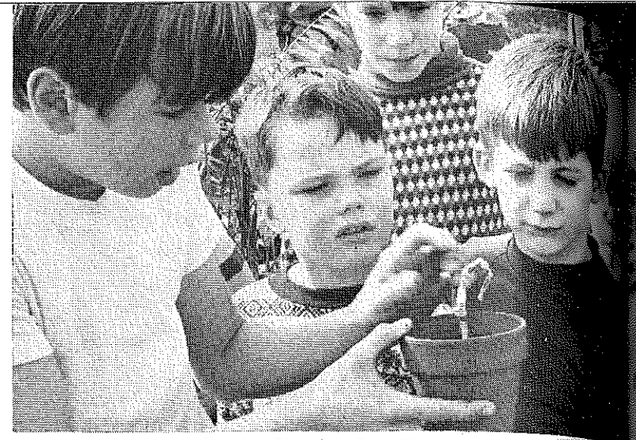
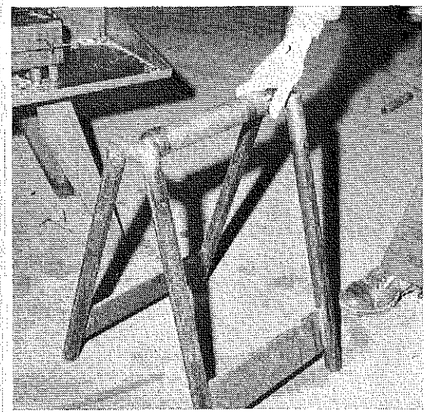


Evaluation in the Judge's Eye. — The President of the Slidell FFA Chapter (Louisiana) accepts the award for the Chapter's Grand Champion Ham. The award was made at the State Spring Livestock Show. (Photo from Dr. J. C. Atherton, Louisiana State University, Baton Rouge.)

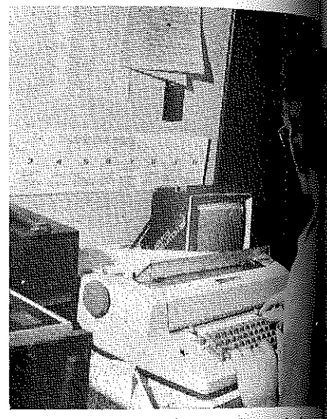


Results of Career Education Planning. Ray Chapman, 12, acting as a tour [guide] displays results of his research project to visiting first grade students. Ray [applied] a "rooting hormone" into a plant which produces a strong root with [new] foliage. This is part of Harbor Heights Elementary School career [education] project. (Photo from Alex Crewdson, Vocational Education Program Specialist, Washington State Council for Occupational Education.)



Stories in Pictures

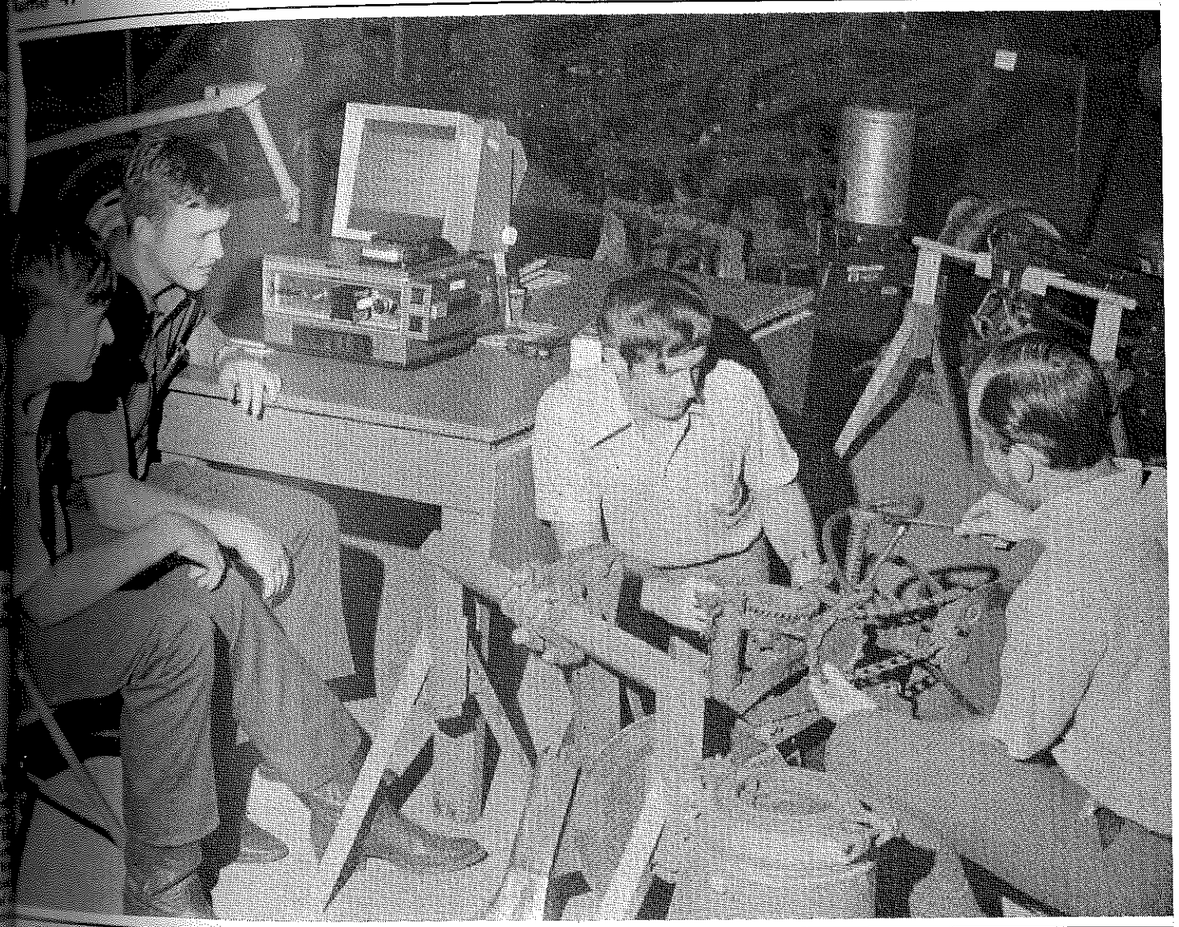
by Richard Douglass



Planning pays off in Agricultural Mechanics. Vocational Instructors team up at Tri-County High School in Nebraska. Two sealed, ball bearings were used to make a stand to support metal being cut in the bandsaw. (Photo by Richard Douglass)

Self-evaluation for self-improvement with the help of the [com]puter. Nebraska student teachers code videotapes of their [own] teaching and get an instant analysis. (Photo by Richard Douglass)

Planning and Evaluation Pays Off. — The [Southern] Virginia Vocational Association's OUTSTANDING SERVICE AWARD was presented recently to Carl S. Thomas, (right) assistant director, Bureau of Vocational, Technical and Adult Education, State Department of Education, Charleston. The presentation was made by W. H. Wayman, retired state supervisor of Vocational Agriculture. Mr. Thomas is now in charge of post-secondary and adult education and [vocational] schools in West Virginia. He served five years as state supervisor of vocational agriculture before assuming his new responsibilities. (Photo by W. H. Wayman)



Developing Technical Competence

Theme—TEACHER EDUCATION

Plus—Index to Volume 46