Attending leadership training camp is an important activity of FFA chapters. FFA members from the Kansas FFA Leadership Camp participate in a variety of sessions. (Photo by G. K. Winsinger, Kansas Board for Vocational Education)

Stories in Pictures

Administration Building at the Kentucky FFA Leadership Training Center. The Leadership Training Center is used during the summer each year to train local chapter officers from approximately 150 schools in Kentucky. (Photo by James D. Medlin, Executive Secretary, Kentucky Association FFA)

James Wall (right), Executive Secretary of the National Vocational Agricultural Teachers’ Association, joins as annilist Bob E. Penrose in explaining Ford Motor Company’s program of tractor power trend demonstrations to Frederick S. Warren (second from left), teacher of agriculture at Holden, Massachusetts, and Orton E. Yearly, teacher of agriculture at Havana, Florida. As 1968 recipients of the Henry American Farmers Degree, Mr. Warren and Mr. Yearly will be able to improve a school to receive a power tractor for use in classroom instruction.

Featuring—
TEACHING — INSTRUCTIONAL MATERIALS
### Editorial

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<td>Subscription price: $3 per year. Foreign subscriptions: $5. Student subscription in groups: one address, $1 for October-May. Single copies: $1. Subscriptions: $5. Address: The American Education, 200 N. Main Street, Athens, Ohio 45701. Notes: Address, New Business Orders, Address Change, and Subscription Enquiries should be directed to The American Education, 200 N. Main Street, Athens, Ohio 45701. All communications should be sent to the Editor or to the appropriate Special Editor. Second-class postage paid at Athens, Ohio.</td>
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From the Editor ... activities or technicals, consequently, it is boring to students. A chief advantage of problem solving is its flexibility. An activity-centered curriculum is essential to the problem-solving approach. Technical activities appropriate to a particular situation is limited only by the teacher's creativity. Just look at some of the possibilities: laboratory and field exercises; observational-learning experience; science programs; simulation; field trips; use of resource persons; co-op job instruction; films, slides, and pictures; video and audio recordings; independent study; individual use instruction; computer assisted instruction; supervised study; discussion, and in some cases even lecture. Although there may be some order to any approach to teaching, problem solving demands no inflexible sequence of events or techniques. Incidentally, what is more boring to high school students or adults than lecture every day? Myth Three: Problem solving emasculates subscribed study in the classroom and cannot be used effectively unless there are adequate reference materials for student use. One teacher put it this way, "If there is no text available, you are done." Basic to understanding this misconception is the realization that learning is an active process. Frequently we rely solely on reference materials when other techniques, particularly laboratory and field experimentation, are more appropriate. Why do teachers frequently ignore or overlook the real thing (plants and animals) when teaching agriculture? A problem solving approach helps students see the need or reason for study which is a difficult task in some cases. Myth Four: Students cannot or will not share in developed ideas and goals in defining problems and questions for study. This statement should be an obvious truth to anyone who has taught high school students or adults. The major factor of the matter is that students can and will share in a constructive manner if given ample guidance. We do not expect students to learn to weld properly without instruction; we expect them to participate actively and constructively in the teaching-learning process without appropriate instruction and guidance? Myth Five: The aim of problem solving is to answer questions. To equate the problem-solving approach to teaching with question-answering is inescusable. Too many teachers attempt the latter under the guise of the former. In problem solving, the process of arriving at answers to the questions or solutions to problems is just as important as the answers or solutions reached. Problem solving aids students in learning a systematic approach to the recognition, analysis, and solution of problems. The approach emphasizes the development of general principles through specific situations, questions, and concerns that are meaningful and of interest to students. Any approach to teaching is no better than the skill, energy, and dedication of the teacher. Curriculum of problem solving in agricultural education should be for reasons other than an inadequate understanding of its basic tenets. All should continually strive to enhance our understanding and use of effective approaches to teaching and learning. ---JRW

Guest Editorial ... funds; others are state supported. Some deal with agriculture only; others operate in all vocational fields. Some distribute their materials on a sales basis; others make them available to schools in the state without charge.

The emphasis in many of these new laboratories appears to be on the course guide type of material. Some of them are not large volumes of materials, but all teacher-oriented, I maintain this may be a "bone without a cart."

In visiting with a teacher from another state recently, I got a strange reaction. This state has a laboratory which has produced several fine course guides and has distributed them to all of the agriculture departments in that state. When asked to comment on these materials, the teacher replied, "They put them out but we don't use them."

If true, this is not necessarily the fault of the material. It may be because it is just part of an incomplete package.

Themes for Future Issues

May
Program Planning and Curriculum Development

June
Public Information Programs

July
Policy and Policy-Development in Agricultural Education

August
Guidance in Agricultural Education

September
Instructional Programs in Agricultural Mechanics

October
Instructional Programs in Ornamental Horticulture

November
Instructional Programs in Agricultural Supplies

December
Instructional Programs in Agricultural Resources

The COVER PICTURE

Dan Vogler (right), Lead Agricultural Occupations Instructor at Parkland College, Champaign, Illinois, teaches a student enrolled in an agricultural technology program. Instructional media used in the technical agriculture programs at Parkland College include audio-visual laboratory programs, programmed instruction, and computer-assisted management instruction. (Photo supplied by Dan Vogler, Parkland College, Champaign, Illinois.)

TEACHING ON TARGET

Curtis E. Loewen

Oregon Board of Education

Developing Objectives

The following steps are suggested for teachers in determining what should be taught and how to evaluate what has been taught.

• Determine what it is that the student is expected to DO at the termination of the instruction segment. Occupational competencies should be considered in deriving these DOING elements. Some examples of occupational competencies are: give a speech, maintain a tractor, feed a sow and litter, conduct a meeting, or determine profit or loss.

• Determine what the student must KNOW and UNDERSTAND in order to perform intelligently the DOING elements. Stress underlying principles and include technical and safety information as they apply to the KNOWING elements. Examples of such KNOWING elements are: how a combination works, to become familiar with common livestock diseases; to ascertain the factors influencing litter size to maintain. These objectives should share one glaring weakness—a poorly defined goal. Two questions arise in the case of the KNOWING objective: What specifically will be taught? and How will it be known that it has been taught?

• Vocational agriculture has enjoyed a history of successful teaching based upon a simple principle: some students are just beginning to discover. That principle is "learning by doing." Interest in this principle is a clue for determining what to teach and how we should be teaching. An inference may also be drawn from it that will assist us in clarifying instructional objectives.

April 1969

The AGRICULTURAL EDUCATION MAGAZINE
PUT REALITY IN CLASSROOM INSTRUCTION

D. RICHARD HACKENBERGER
Vocational Agriculture Teacher
Millville, Pennsylvania

Teachers should be continually looking for ways to make teaching more realistic. Learning is more effective when teaching provides answers to real problems and provides real objects to simulate situations. Vocational agriculture abounds in opportunities for developing realistic classroom experiences. The area of soil science is no exception.

REALISTIC TEACHING AIDS

Soil profiles are effective teaching aids. But unless the teacher knows what a profile is and what soil characteristics can be illustrated with soil profiles, the profiles will probably be of little use. A soil profile is a record of the soil’s history and a clue to its future. It can be used in teaching topics such as the following: color; depth to bedrock, depth of plow layer, depth of topsoil, depth of subsoil, inherent fertility, structure, texture, drainage, root penetration, parent material, and changes that have occurred such as alluvial or colluvial action, glaciation, flooding, and degree of erosion.

Soil profiles are not difficult to prepare if done as a group effort by teachers. A teacher, soil scientist, or conservationist who is familiar with the soils of the area and understands the procedure for lifting and mounting profiles is the first requirement for a successful workshop. It is important that all teachers participating in the workshop learn how to select a site and lift a profile from a pit.

MAKING SOIL/profiles

Collecting profiles should be a long-term project. Teachers should be alert to opportunities for lifting profiles. For example, house foundations, road cuts, stream banks, and diking operations provide opportunities to lift profiles if given a relatively short time with a minimum amount of digging.

Before taking a soil profile, the teacher should decide how the profile will be used and what soil characteristics are to be illustrated. One suggestion is to make a series of profiles from a soil catalog which contains samples of a series that illustrates different degrees of internal drainage and surface erosion.

The selection of a site for lifting the profile is important. Use a soil survey map to select a site that has a large area of the type of soil that is to be sampled. This will reduce the chance of getting a profile that is a mixture of different soils. For example, if a profile is wanted to show poor drainage, select a site in the middle of a relatively large area of a poorly drained soil.

Equipment Needed

A wooden box with inside measurements of 48 inches long, 6 inches wide, and 2 inches deep. The box should be put together with screws so it can be taken apart to remove soil. A strip of tobacco muslin or cheesecloth.

- Pick or gridding box
- Round pointed shovel
- Square shovel for facing the pit
- Brick hammer or geologist’s hammer
- Butcher knives
- Pruning shears for cutting roots

Steps for Lifting Profile

- Smooth face of pit so box touches entire length
- Mark outline of soil column with knife around outside of profile box
- Hold column of soil by digging back along sides with brick hammer
- Shape column of soil to allow box to slide out; space can be allowed at top of box for vegetation or ground cover
- Dig around column of soil at the corner and tie with cloth to hold box on soil column
- Continue to dig behind profile, working towards top and bottom, rolling soil to box as you proceed
- When soil column is free, take to school laboratory

Laboratory Materials Needed

- Mounting board 3 inches thick, 3 inches wide, and 4 inches long (exterior plywood or white pine)
- 3-inch quarter round molding (about 10 feet)
- Heavy-duty vacuum cleaner
- Nitrate airplane glue (clear nitrate dope)
- Plastic solution for dipping profiles prepared by mixing the following in the proportions listed (one gallon Methyl Isobutyl Ketone; two gallons Acetone NF; four pounds or 1,000 grams Polyvinyl Plastic Powder. The mixture should be shaken on an automatic shaker for about 12 hours or stirred slowly with a paint mixer on an electric drill to get the plastic powder dissolved completely in the liquids. (A stoopak mixture will saturate from six to ten profiles)

Plans for Implementing Office of Education Policy

Moving in Washington, D. C. during January 1969, the National FFA officers and Board of Directors voted to comply with the Office of Education policy as follows:

- That the problems and concerns of the Board Members with regard to the OE policy be conveyed to OE officials.
- That legal counsel be sought to determine the full implications of the new policy in relation to the OE policy.

The Office of Education’s role is not to dictate the manner of study, but to provide guidance and counsel to help assure that the study is wise and worthwhile.

These advisors may provide guidance and counseling but are not to participate in the administrative decision-making of student organizations as officers nor are they to participate in activities involving the solicitation, receipt, or accounting of funds or fees.

The designated advisor will be permitted to carry out his advisory function as part of his official Federal assignment.

The Office of Education will not provide permanent office space, supplies, and services or pay the salaries of student organization staff.

The Office of Education is very much in favor of the work of student organizations principally by influencing the solicitation, receipt, or accounting of funds or fees. Therefore, it anticipates a gradual implementation of these provisions.

The Office of Education will not, in the application of this policy, go counter to any legal provisions which may require modification of a particular item in a specific instance.

Policy Statement on the Relationship Between the Office of Education and Student Organizations

The recent review of the Office of Education’s role with respect to student organizations has resulted in establishing the following policy position:

- The Office of Education will establish and maintain advisory relationships with student organizations through staff participation in appropriate student group programs and activities, but the Office of Education will not direct the activities of student organizations.
- The Office of Education will provide on request the services of an employee to serve as an advisor to student organizations whose activities are related to an instructional program.

This policy statement resulted from action taken by the U.S. Office of Education’s relationships with student organizations. A statement of the U.S. Office of Education relationships with student organizations dated December 6, 1968, states that “the Commissioner has approved the attached policy statement on OE relationships with student organizations.” This policy is effective immediately with complete implementation to be accomplished as soon as feasible.”—The Editor

APRIL, 1969
TEACHING ABOUT COOPERATIVES
IN VOCATIONAL AGRICULTURE

Paul M. Day
Teacher of Agriculture
Faribault, Minnesota

Organizing Instruction
A topical sequence for the introductory phase is a study of the services available from cooperatives in the local community. Cooperatives provide a wide variety of services to their members. Some enable farmers to obtain production inputs at lowest possible cost. Included in this group are the number owned farm credit agencies and insurance and artificial insemination associations. Marketing cooperatives enable farmers and ranchers to realize greater returns on the products they have to sell. A knowledge of the role of local, state, regional, and national cooperatives provides students a better understanding of how cooperatives aid the farmer.

An instructional program on cooperatives should include employment opportunities provided by cooperatives as well as the educational and training needs of prospective employees. Cooperative leaders have played a prominent role in developing programs of supervised occupational experience for students in vocational agriculture. They have provided training stations, added to existing training programs and supervised students on supervised occupational experience programs.

Instructional Materials
In Minnesota we are fortunate to have a teaching outline on cooperatives written by two former teachers of agriculture. The teaching outline was presented to each school by the Minnesota Association of Cooperatives. Included in the outline are suggested study guides, films, references, discussion questions, quizzes, and suggested learning experiences. The guide includes five suggested lesson plans for each of the two high school and for adults. Each unit becomes increasingly more complex and challenging giving students a deeper insight into the operations of cooperatives. Many teachers have modified the guides to fit their individual method of presentation. A number of state farmer Cooperative Councils make similar outlines available to teachers.

As a student reference, I use primarily a booklet entitled "Your Off the Farm Business" which is available from the Cooperative League of the USA. Another reference, "How We Operate; Do Business in America," and many other useful references and films are available from the American Institute of Cooperation. Other publications may be obtained from the Farmer Cooperative Service, U.S. Department of Agriculture. Especiallly useful is their publication entitled "Cooperatives in Your Business." Your state Farmer Cooperative Council or regional cooperative may have additional publications that will be helpful in teaching about cooperatives.

Teaching
I feel that in teaching about cooperatives it is important to involve a representative of a local cooperative in planning the instruction. These persons can be used to supplement the state instructor in the unit also. As resource people they help you out when students ask extremely technical questions. We use personnel from cooperatives on our Advisory councils at the local and state level.

This cooperative becomes the vehicle for implementing subject matter in meaningful, worthwhile programs which will not only motivate students but will offer them an opportunity to become involved in community service activities, develop leadership ability, and promote effective citizenship. The need for teaching principles of cooperatives is obvious. The methods of teaching, however, varied they may be, will be most rewarding.
Use Audio-Visual Materials

For More Effective Teaching...

How do we learn? Research shows that 85 percent of what we know comes through sight, 11 percent through hearing, and 4 percent via taste, touch, and smell. Would it not seem proper then that we direct most of our teaching toward the sense of sight? One of the most effective ways of teaching is to supplement one's methods of teaching with audio-visual materials.

A Commendable Record

Education has retained in too many cases the antiquity of a lecture-and-listen type classroom. All over the nation we see a trend to shed the chains of antiquity through wider usage of multi-media in teaching. Because of the nature of agriculture, it has always lent itself to the wide use of visual aids. These aids include models, pictures, films, graphics, and displays. I hope that many teachers of agriculture have not just been told to lecture and the chalkboard. Agriculture teachers have always used field trips which is another way of bringing the community into the classroom.

We know that direct purposeful experiences enhance learning. Experience programs have been an example of a purposeful experience which for years has been an effective way of teaching and learning in vocational agriculture. Many other departments of the school are now coming to this realization and are using agriculture as a model though they may not say so. However, let us remember that whatever the means, method, or media used, it must be well planned, organized, and carried out or its effectiveness is lost as a learning experience.

New Media

Vocational agriculture cannot afford to rest on its laurels, however. New audio-visuals warrant our consideration. Think of the possibilities of the portable tape recorder. It is great to take along on a field trip, to record an interview, or to bring back the realistic noise and background of a factory type field trip to the classroom. Many of you have not used fully the 16 mm film to say nothing of 8 mm film loop or closed circuit television. Locally made colored slides are helpful in any community. The overhead projector is a must in every classroom and its use is only limited by your ingenuity.

Using Media Effectively

Remember that media must be planned to fit a learning situation and only then will their real effects be seen. Media are not a short cut or an easy way out for the teacher. Once we have established a goal of what we hope to accomplish, we must then select the proper techniques and media to achieve that goal.

We must obtain trained staff to help teachers prepare, use, and understand all forms of media from the chalkboard. Chalkboard use in classroom instruction. Schools should be planned with an Instructional Media Center. The days of the library as a place where books are kept is gone. We must look at the Instructional Media Center as a place which includes books, tapes, films, individual study aids, and a host of other learning materials that are available to all students.

How long has it been since you have introduced innovation into your method of teaching? As teachers we should have a fear of getting into a rut in our method of teaching. It is equally as hard to get out of our accustomed patterns. Put yourself in your students' shoes. Would you find yourself interesting? Let us vow that whatever media we choose in the future that it will not be used in doses of more than one-half hour each—lecture included. I challenge you to use new media in your classes. You will be a better teacher for it and your students will love you!

Improving Teaching in Vocational Agriculture

E. K. CHAUBY, Alphabad Agricultural Institute Alphabad, U.P., India

RALPH J. WOODIN, Teacher Education The Ohio State University

Improving the quality of teaching in vocational agriculture, while at the same time involving changes in curriculum and programs, creates a problem for teachers and administrators in agricultural education. Recognizing the importance of high-quality teaching, research was undertaken in Ohio to identify factors believed to influence the quality of teaching of vocational agriculture.

Important Factors

In order to identify the factors which were most important in influencing the quality of teaching, a list of factors was rated by each teacher of vocational agriculture in Ohio. A comparison was made of these ratings with ratings of 10 per cent of the teachers judged to be most successful and with ratings of a jury of experts comprised largely of teacher educators and supervisors. All three groups agreed that the following factors have an important influence on the quality of teaching in vocational agriculture:

- Students with appropriate interests, motivation, and capacities are enrolled in vocational agriculture classes.
- The type of occupational experience program is such that it contributes to the learning needed by students in entering an agricultural occupation.
- Modern curricular materials and teaching tools are used regularly during classroom instruction.
- Provision is made for adequate time for preparation for teaching.
- There were other factors where less agreement was shown among the three groups. These factors included the development and use of a program of instruction for vocational agriculture classes, the influence of extra-school duties on the quality of teaching, and the academic potential of students in vocational agriculture compared to other students in the school.

The Situation

Each teacher indicated the presence or absence of certain conditions related to the factors believed to influence the quality of teaching in vocational agriculture. These findings provide a benchmark about teaching procedures at a particular point in time.

Most teachers believed that their enrollment included primarily students who should be enrolled. They also believed that they were getting their share of outstanding students as well as meeting the needs of their share of disadvantaged students.

The amount of time used in preparing for classroom teaching was limited. Only about one hour of preparation was used by teachers for two and one-half hours of classroom teaching. This situation was aggravated by the fact that more than two-thirds of the teachers spent an hour a day on extra-curricular school duties such as cocurricular, honor, and study hall and assisting with athletic teams.

A majority of teachers were following a program of instruction which had been developed for each class. Ninety-two per cent of teachers had programs of instruction which had been revised within the last three-year period.

A variety of curricular materials were used to enrich classroom teaching. About 90 per cent of the teachers were using both text and textbook supplements, and about 5 per cent were using some of the newer curricular materials such as video tape and film continuous loop motion pictures.

All teachers of vocational agriculture, the most successful 10 per cent of the teachers, and the jury of experts were also asked to rank in a hierarchy of importance the factors believed to influence the quality of teaching in vocational agriculture. These were their relationship with the rankings of the factors by the jury of experts and the most successful teachers and no significant relationship between the rankings of either the jury of experts and teachers or by the most successful teachers and all teachers.

Help Which Teachers Need

As a final step teachers of vocational agriculture were asked to indicate what they believed they were the most promising educational measures which could be used to improve the quality of teaching. These were their recommendations for help which might be provided by teacher educators and state supervisors.

- Teachers were concerned with the development of more understanding. (Continued on page 241)
An Effective Approach for Organizing Subject Matter

ROLAND L. PETRISON, Teacher Education University of Nebraska

The curriculum of the secondary school has undergone considerable change during the past few years. It has been common for students, teachers, and parents to recognize and experience curriculum changes in mathematics, biology, chemistry, physics, social studies and a number of other subjects. Each program has introduced new courses and new content. Each innovation has reorganized subject matter into a conceptual pattern with the idea that this process of education will produce greater understanding, depth, and transferability of learning.

A Question

A crucial question facing agricultural education is how to organize subject matter to best develop the underlying biological, scientific, physical, and economic principles which were considered most vital to agriculture. The courses of study were given agricultural titles to avoid a misunderstanding that teaching a vocational agricultural science was teaching the sciences. In reality the courses are based on the principles which are considered most important to agriculture. Subject matter specialists at the University of Nebraska critically reviewed each course for accuracy of content. The following courses were developed: Animal Science Principles for a ninth grade course; Animal, Plant, and Soil Science Principles for a tenth grade course; Agricultural Mechanics Principles for an eleventh grade course; and Agricultural Marketing and Management Principles for a twelfth grade course.

The Teaching Procedure

Each unit of instruction is designed so students discover the underlying principles of a subject matter group. This discovery process is accomplished by having students determine why a situation or action is occurring as they observe and perform activities such as an experiment, demonstration or a simulated game which illustrates the principle. During the discovery phase of the unit, the teacher functions in a nondirective manner. The teacher continually poses the question of why a certain situation is occurring. After students are directed to the teacher's satisfaction that they have discovered and defined the basic underlying principle, the teacher provides factual information concerning the subject matter along with directing the students through several problem-solving situations which have direct agricultural application. The method is provided a blending of why, what, and how.

The Study

As a result of this development for structuring agricultural subject matter, a companion study was undertaken to compare the principles approach and the traditional approach in teaching animal science at the ninth grade level; animal, plant and soil science at the tenth grade level; and agricultural mechanics at the eleventh grade level; and agricultural marketing and management at the twelfth grade level. The study involved 215 vocational agriculture students in ten Nebraska public schools. Five schools were randomly selected as the experimental group with the remaining five schools as the control group. Four agricultural achievement instruments were designed to obtain pretest and posttest scores. Several standardized instruments were used to collect data on a number of independent variables.

Major Findings

An overall analysis of student achievement in all grades resulted in significantly greater achievement for students taught agriculture based on principles.

Principles in the ninth grade Animal Science courses and the eleventh grade Agricultural Mechanics course attained significantly greater achievement as a result of instruction based on the principles approach.

No statistically significant difference existed between the achievement of students taught agricultural subject matter based on principles and those taught in a traditional manner in the of tenth grade Animal, Plant and Soil Science course and the twelfth grade Agricultural Marketing and Management course.

What happened to students' attitude toward the teacher? What were the results for fourth quarter average mental ability? What were the results for students with specific interest in subject matter? An analysis of students' attitude toward the teacher and the teaching method revealed that no significant differences existed between the two groups.

An analysis of intelligence quotients and subject interest in agricultural science, mechanics, or business took place. No significant differences existed between students with mental abilities or particular interests were not handicapped as a result of structuring agricultural subject matter around principles. The data concerning these questions indicated no significant differences between the two groups.

An analysis of teachers' opinions revealed that teachers felt the principles approach resulted in improved instruction. They also indicated that the new curriculum necessitated a change in their teaching techniques. School administrators strongly supported the principles approach for organizing agricultural subject matter. They felt that a change was needed in vocational agriculture programs and in their opinion the new principles approach brought about that change. All administrators felt the principles approach provided improvement in their vocational agriculture courses.

Some Implications

As a result of previous research and the findings of this study, it seems apparent that through the use of discovery and problem-solving learning and an opportunity to structure agricultural subject matter to students of vocational agriculture.

improving Teaching Vocational Agriculture

(Continued from page 235)

and better using of guidance and counseling services in schools.

Teachers believed that developing and using available additional curricular materials would be helpful. They expressed strong approval of and approval for additional materials and similar curricular materials which help in developing new programs.

Teachers recommended more and better in-service education programs in curriculum development, in the use of curricular materials and teaching devices, and in the organization of appropriate occupational experience programs for both juniors and seniors. An equal importance to credit and non-credit types of in-service education.

Teachers believed they needed updated and improved policies in schools to assist in the further development of vocational agricultural programs. They believed that they needed policies regarding the rescheduling of work hours for teachers, the reduction of school days, provisions for financing more effective teaching materials, and the establishment of a better public understanding of the vocational agriculture programs.

Summary

There are dangers in making generalizations from this study to other states where conditions may vary. It would be expected, however, that the involvement of all teachers in Ohio as respondents in the research certainly increases their awareness for the need for high quality teaching. It also seems likely that teachers generally agree upon the major factors which affect the quality of students' instruction, and that there is a consensus provides a useful basis for in-service education and other professional assistance to teachers.

If Ohio teachers are typical, then teachers are generally making more use of the newer practices for teaching. However, they are not utilizing all of the newer teaching resources available. Teachers agreed on the need that what teacher educators and supervisors could do to help improve the quality of their teaching.
Preserving Plant Specimens

HUGH COFFMAN
Vocational Agriculture Teacher
Vicent, Ohio

One of my biggest disappointments has been that it has taken so long to find the right method for preserving plant materials. I have had to try several different techniques before I found one that works consistently. The method I use is simple and effective.

The procedure I use in preserving plant materials is as follows:

1. Cut dry plant contact paper into sizes convenient for storing. I use pieces 9 inches by 24 inches.
2. Remove backing from contact material.
3. Lay contact paper with self-adhesive side up and mount the plant specimens with clear contact paper.

The Effectiveness of Instructional Materials in Improving Teaching and Learning

WILLIAM J. BROWN, JR., Research Coordinating Unit North Carolina State University

Are instructional materials effective in improving teaching and learning? This question poses at least two viewpoints. There are those who feel that effective instruction can be developed within the existing learning environment through interaction of teacher and student. This viewpoint precludes the use of structured resources units which suggest objectives for the group, teaching-learning activities, and subject matter content. On the other hand, some educators suggest that units of instruction can be identified which are relevant to the needs of many students. With this assumption, curriculum development and teaching are seen to include in a unit of instruction, psychologically organize or sequence the content in a manner that is most meaningful to students and develop suggested teaching procedures.

Judging from the emphasis currently placed on the curricular guides and instructional materials, the effectiveness of instructional materials is apparently assumed. This current emphasis upon instructional materials development appears to indicate that the facilitation of the teacher's instruction and thereby enhance student learning. However, there is very little evidence which indicates that student learning is improved.

In fact, the consensus of most research indicates that instructional materials, for example, module design, instruction units, and programmed learning, have had limited impact upon student learning.

Current Research

Herron evaluated instructional materials that were developed to help introduce off-farm agricultural occupations instruction into the vocational agriculture curriculum. He found that the instructional materials had, at best, a limited impact on the curriculum.

When the teachers who purchased the instructional materials were surveyed, only 37 percent of those responding had used the materials. This rather low rate of use by percent of teachers raises several questions with regard to teachers' acceptance of instructional materials employed.

A concurrent question relates to how the materials were used. Herron's study revealed that although the instructional materials were written for teacher and student use, they were used primarily by teachers for their own benefit rather than as student references. Evi- dently, teachers who used the materials conceived them primarily as aids for teachers rather than for students.

A second assumption that instructional materials facilitate learning and thus improve student learning also seems to be in jeopardy. Several studies investigated the effectiveness of furnishing various types of instructional materials to students. Legg compared the use of pregrouped instructional materials with conventional methods of teaching farm crop. No significant difference was detected. Similar results were found when the study was replicated by Hull and McClay. Rhenman investigated the effects of providing structured versus unstructured instructional materials to teachers. No significant differences were detected in student achievement between schools where teachers received structured and unstructured materials.

Up to this point, the research reviewed has primarily compared the effects of one type of instructional materials with another type. This is really not the complete picture until a comparison group is used which does not receive any instructional materials. Drowbaugh and Shonit furnished teachers resource units including teacher guides and student matter resource booklets and compared them to a control group of teachers who taught the same content but used their own instructional devices. They found that furnishing instructional materials significantly improved student learning when compared to the controls group whose teachers used their own instructional materials.

A subsequent study by Brown tested the relative effectiveness of the various new areas of instruction as a resource unit. For example, some resource units included only a teacher's guide while others develop subject matter references for students. To determine which was most effective, forty teachers were assigned to one of the four experimental groups: one of the four experimental groups: one of four types of instruction: a) that used both a teacher's guide and a subject matter text, b) that used both a teacher's guide and a subject matter text and also a background text, c) that used the teacher's guide, a subject matter text, and a background text, or d) that used only the teacher's guide.

One of my biggest disappointments has been that it has taken so long to find the right method for preserving plant materials. I have had to try several different techniques before I found one that works consistently. The method I use is simple and effective.

The procedure I use in preserving plant materials is as follows:

1. Cut dry plant contact paper into sizes convenient for storing. I use pieces 9 inches by 24 inches.
2. Remove backing from contact material.
3. Lay contact paper with self-adhesive side up and mount the plant specimens with clear contact paper.

The Effectiveness of Instructional Materials in Improving Teaching and Learning


M. C. Shonit, "A Study of the Effectiveness of Supervision in High School Youth and Adult," Bulletin 72, Agricultural Experiment Station, Pennsylvania State University, 1952.


The Effectiveness of Instructional Materials in Improving Teaching and Learning


In recent years many devices have been introduced to stimulate the interest of students. Some of these instructional aids are effectively used by teachers. Think of persons who have tried to stimulate your interest in a given subject by using a variety of methods. Do you recall the devices used? Or do you just remember the fact that you got his point across to you in such a manner that you still remember it?

Discussion and Interest

Teachers who maintain interest in the classroom generally know their subject matter well. They know something about the technical and practical phase of their subject and are willing to learn more about the topic by continuing study. They are never in too big a hurry to stop and answer questions or let students discuss or relate experiences. One of the quickest ways to still interest is to ignore someone who would like to participate in the discussion. Better teachers encourage active participation in classroom activities. The teacher by asking leading questions and acting as the moderator of classroom discussion will find that a discussion session one of his most valuable methods of instruction. A slow-thinking teacher may suddenly find he has a full session on his hands; but, with proper guidance, good discipline, and student participation, this method of teaching can certainly stimulate interest.

There are a few teachers who are not only interested in their students but are also interested in their subject matter. These teachers are not afraid to ask questions, to go after the answer, to risk making a mistake, and to admit it. They know that the students want to learn, and they are willing to do what it takes to make the students understand. They know that the students can be taught, and they are willing to do what it takes to make the students learn.

A Description and Source Listing of Professional Information in Agricultural Education, 1968-69

This compilation of instructional materials is developed annually by the Professional Information Committee of the Agricultural Education Division, American Vocational Association. Instructional materials are listed for Agricultural Mechanics, Animal Science, Conservation and Forestry, Farm Business Management and Marketing, OE-Farms Agricultural Occupations and Business, Ornamental Horticulture, and Plant Science and Soil. Listings for professional information include Curriculum Development and Course of Study, Guidance and Occupational Opportunities, Occupational Experience Programs, Supervision and Teacher Education, and Teaching Materials.

A teacher of horticulture demonstrates flower arrangement in high school class, preparing for employment in flower shops.
Some Principles of Learning

LOYD R. HUGHES
Yosep College
Picto, Arizona

The bell rings signaling the start of another school day. Twelve pushing, laughing, joking, scrumbling, energetic seventh-graders and three somewhat quieter girls enter the agriculture classroom. Johnny who is six feet tall sits next to Chuckie who is four feet six inches tall. Charlie talks continually and loudly while Henry is extremely quiet and hardly speaks even when asked a question. Jane may present a problem in a class of boys. Kurt’s father is a permanent farmer in the community. Bill’s father is a janitor at the public service building. As this situation is repeated day in and day out, it is not unusual for the teacher to ask “How do I teach fifty students with so many different abilities, interests, backgrounds, capabilities, and opportunities?”

What does a teacher do in this situation? He relies on his background and experience and what he has been taught in student teaching and undergraduate and graduate courses. He may simply try what he hopes will work. Hopefully, he will be asked questions by other teachers and read articles in professional journals.

It is with this latter thought that this article is written. The principles of learning presented have been gleaned from educational psychology. They have been selected because of their applicability in teaching agriculture. Teachers of agriculture have at their disposal the facilities to utilize most effectively these principles of learning.

All Behavior Is Caused

Three primary factors determine a student’s behavior: his physical inheritance, his background of learning, and the present forces acting upon him. The first variable is not subject to manipulation but the other two are. A teacher and his assistants can manipulate these variables to present the most desirable changes in behavior of students. It must be remembered that there is always a reason for each student’s behavior. Since the background of learning and home environment are different for each student, we should not expect the same behavior from each. Agricultural occupational teachers make home visits and visit the employment locations of students. These visits can be extremely helpful in understanding students’ behavior.

Student Perception Causes Responses To Vary

Each student perceives things in terms of his past experience and the present environment. Therefore, these perceptions will vary with each student. However, it is how things seem to the individual student which is important, not necessarily how they actually exist. The implication is that for teachers to determine how the student sees things before they attempt to change that image.

Student Responses Will Vary According To Classroom Atmosphere

Changes in the environment will elicit changes in student behavior. Studies have shown that students react differently under autocratic, democratic, and laissez-faire social atmospheres. A democratic atmosphere is most conducive to the physical and emotional well-being of students. Students respond for teachers who are democratic, unassuming, interested in them, cheerful, and fair.

Motivation Is Essential To Learning

Motivation is the drive to satisfy needs. Each student has needs which each student is motivated. The problem arises when the drive to satisfy needs is through a socially accepted manner or not. If this occurs the problem is to show the student by reinforcement and other means that the use he has been made through socially acceptable channels. Teachers must discipline the activities of students so they identify needs and become motivated to use proper channels to resolve those needs.

Without A Sufficient Stage Of Readiness, Learning Is Inefficient

Students vary widely in their ability to do various things as a teacher should not expect all students to weld properly or read with competence. The same principle applies to any learning activity.

Immediate Reinforcement Is Necessary

There are many kinds of reinforcement: verbal, physical, and emotional. There is sufficient evidence that primary application of this principle is applicable to teaching. The teacher should become a learning situation with immediate reinforcement of correct response. One way of achieving this is by construction or with short-answer tests and allowing the students to grade their own papers.

A Model for Teaching Landscape Design

MAURICE DUNN
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When teaching principles of landscape, there are certain concepts which are difficult for students to visualize. One concept is that of asymmetrical and symmetrical balance. The model shown in the accompanying photograft serves as a teaching aid to help students visualize the balance concept along with several other related ideas.

The Model

The materials needed are a cardboard box (approximately 8 inches by 12 inches by 2 inches) white and green paper, a sheet of styrofoam (2 inches by 12 inches by 2 inches), and a balance stick. The cardboard box is painted white and doors are drawn in with a felt-tip pen. When drawing in the doors it is important to balance the door in the center of the door and the center of the other side. This allows the illustration of both symmetrical and asymmetrical balance in the foundation planting.

The plants for the model are made from the styrofoam and painted green. The best way to cut the styrofoam is by using a hot wire device that is available at that purpose. The most useful shapes for plant materials are pyramidal, spreading, and globular as shown in the photographs. The styrofoam plants are notched in the bottom so they can be wedged on the balance stick and moved to various positions.

Using the Model

It is desirable in a foundation planting that the doors of the house serve as the focal point or focalum. Balance is centered around the door. This can be demonstrated with the model by placing the balance stick so that it is balanced in front of the house with the fulcrum of the balance in front of the door. The styrofoam plants are placed on the stick in different combinations until the stick is balanced. When balanced, either symmetrical or asymmetrical balance has been achieved. Symmetrical design is achieved when the plants are identical on each side of the door when there is balance but the plants are not equal on each side of the door.

The model can also be used in explaining asymmetrical balance. By using the side of the model which has the door off-center and placing the door the fuller side, the stick is already unbalanced. Most asymmetrical material will have to be added to the short side of the stick. By balancing the stick, an asymmetrical type of design can be demonstrated.
AGDEX: A Filing System for Instructional Materials

Harlan E. Ridenour
The Ohio State University

Ten years ago the National Project in Agricultural Communications published the AGDEX filing system for agricultural publications. The filing system was the result of research sponsored by the National Project which was conducted in the Department of Agricultural Education at The Ohio State University. Ohio teachers and extension agents aided in field testing the filing system prior to its publication.

After the initial printing, AGDEX has been distributed by the Iowa State University Press. The present supply will be exhausted in a few months and the question has been raised as to whether or not its publication should be continued.

Values of AGDEX

The question of the desirability of reprinting AGDEX was considered by the Professional Information Committee of the Agricultural Education Division, American Vocational Association, in December 1968. The Committee recognized the value of having a commonly used filing system for curricular materials. The broadening of the agricultural education program in recent years has resulted in teachers receiving increasing amounts of instructional materials. These materials must be examined by the teacher and those that support his program filed in such a way that the information can be retrieved when needed. These teaching materials are in the form of teaching guides, course outlines, research bulletins, extension bulletins, commercial publications, and audiovisual materials. The AGDEX system has proven to be highly effective by those who have used the system.

Chapter objectives show that AGDEX is the only filing system used in more than one state. The survey revealed that nineteen states recommend the use of AGDEX while eight others recommend a locally developed system.

Recommendation

The Professional Information Committee recommends that states now using the AGDEX filing system continue to use it and consider whether or not to recommend its adoption by their teachers. If the system were more universally used, materials could be preceded by publishers for the AGDEX system. This would facilitate a free exchange of materials among states and save the much time of teachers in filing materials. To encourage this development, the Agricultural Education Division of the American Vocational Association adopted the resolution accompanying this article which recommends the adoption of the AGDEX system.

Resolution

Adoption of the Uniform AGDEX Filing System

WHEREAS, a uniform filing system, called AGDEX, was developed through a grant from the National Project in Agricultural Communications as a result of a request from the American Vocational Agriculture Teachers Association and Agricultural Education Division of the American Vocational Association.

WHEREAS, the AGDEX filing system provides teachers of vocational agriculture and other users of professional and technical information with a practical and flexible filing system.

WHEREAS, the use of the AGDEX filing system enhances the use of professional and technical information and saves the teacher’s time in filing and retrieving information.

WHEREAS, a survey of state supervisors in agricultural education indicated that the use of AGDEX by teachers of vocational agriculture is expanding and that AGDEX is the most widely used filing system.

WHEREAS, the Agricultural Education Division of the American Vocational Association encourages the adoption of the AGDEX filing system by states not now using the system.

WHEN FURTHER RESOLVED, that each of the states not now using the AGDEX filing system be encouraged to adopt the system and to conduct workshops with their teachers concerning the use of the system.

Power Technology by George R. Stephenson


This book represents a major revision of the text Power Mechanics which was published in 1963. Five new units have been added and two existing units have been extensively rewritten. The sections in the text are Introduction, Internal Combustion Engines, Electrical Energy, Transmission of Power, Atomic Energy, Space Age Power, and Your Future in Power. The text begins with man’s efforts to harness energy and progresses through the small gas engine into other internal combustion engines, electrical, atomic, and space age power. Illustrations are numerous and there are questions at the end of each chapter to guide discussion. A list of films and filmstrips to be used with the text are included in the appendix of the text. An instructor’s guide of 46 pages has been prepared to assist the instructor in using the materials found in the text. Two sets of transparencies are also available.

Although the text was written for industrial education, the book is well suited to teaching power mechanics in agriculture. The material is presented in a logical sequence and is well written. The text would be suitable for high school classes as well as vocational and other post secondary schools.

Curtiss E. Weston
University of Missouri

BOOK REVIEWS

Gerald R. Fuller, Special Editor
University of Vermont


This book is a revised edition of one that was published in 1946. It is a nontechnical overview of all phases of soil conservation. Soil conservation, as a subject, is divided into 67 sub-topics such as timber, water, forests of the East, topsoil, floods, soil surveys, terraces, range land, levees for harbors, and stream banks. Each topic is treated with one page of discussion and one full-page picture. In effect, the book is a brief word and picture story of the origin, waste, current use and conservation of the land.

This book is part of the Soil Conservation Service of the United States Department of Agriculture for many years. He retires with the knowledge and experience of an expert. The book appears to be directed toward an audience of junior high school age and older. It is designed to develop a general understanding of conservation and a feeling of concern for the wise use of land. Its main use would be for personal reading. It is well written and beautifully illustrated.

A. H. Kreis
Virginia Polytechnic Institute

Special Editor for Pictures

Robert W. Walker, Assistant Professor of Agricultural Education at the University of Illinois, is the author of a new book, Research in Agricultural Education. Research in Agricultural Education is part of the Department of Agricultural Education at the University of Illinois. He received his Ph.D. degree in agricultural education at the University of Illinois. In 1969, he taught vocational agriculture and food science at North Carolina State University. He is currently employed as an agricultural education consultant for the North Carolina State University Extension Service. He is the author of six articles on agricultural education, and he has taught at the University of North Carolina for more than fifteen years.

The book focuses on research in agricultural education, covering topics such as the history of agricultural education, the roles of agricultural education, and the future of agricultural education. The book is written in an engaging style, making it accessible to both students and professionals in the field. It provides a comprehensive overview of the current state of research in agricultural education and offers insights into the future of the field.

The book includes case studies and case studies, providing examples of how research in agricultural education can be applied in real-world settings. The book is well-organized and includes a wealth of information on the history and development of agricultural education, as well as the various challenges and opportunities that exist in the field today.

In conclusion, Research in Agricultural Education is an excellent resource for anyone interested in the field of agricultural education. The book provides a comprehensive overview of the current state of research in the field, and it offers valuable insights into the future of agricultural education. It is written in an engaging style, making it accessible to both students and professionals in the field. Overall, I highly recommend this book to anyone interested in the field of agricultural education.
Stories in Pictures

ROBERT W. WALKER
University of Illinois

The video tape recorder is used to record and play back classroom presentations of student teachers at the University of Missouri. (Photo by Gino M. Carel)

Students at the Agricultural and Technical College, Cobleskill, New York, receive instruction in the proper method of cutting beef. (Photo by Howard Sidney)

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