Stories in Pictures —
Technology in Agricultural Industry

Modern agricultural industry requires specialized technical competencies. These photographs illustrate students involved in agricultural supplies, crop judging, cheese manufacturing, and equipment evaluation.

(Photographs by Gary Gray, Agricultural Education Major, University.)

THEME: Using Realia in Instruction
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Editor's Page
Using Realia in Instruction

Kinds of Realia

Books in realia are the real thing. In the classroom, these books are the objects and specimens. A specimen is an object of a larger thing. In the case of realia, weld, or other object is the real thing in instruction to give meaning to written and unwritten text.

As far as possible to have the real thing available, some substitutions are used. Some substitutions are more realia than others. The most realistic substitution available is a real specimen. In some cases, substitute materials may actually be more valuable than the real thing. For example, an enlarged photograph of a screen may be more useful than a specimen.

Models are recognizable three-dimensional representations of real things. Examples include model tractors, views, and live animals. Models should resemble the real thing. They can be used to simulate or reproduce reality. Cutting, folding, and cutting models can be used to simulate the real world situations. For example, a small mock-up of a classroom can be used for a 5th-grade class. The mock-up can be used to develop skills needed by a child taking a job.

This, however, will not solve the problem of actually working in a farm supplies store. The only supervised occupational experience is very costly.

Realia as a substitute for realia are also included as realia. Though not as good as models and specimens, audiovisual aids can be a substitute for realia. A picture, transparency, or recording can usually be used to substitute for realia. The following explanations of teachers. Audiovisual aids are not as accurate as images developed with realia.

Why Realia?

Realia should be used because of efficiency. An instructor can use realia as a better communication and therefore makes better use of the time of students and the teacher. Realia usually appeal to more than one sense. Realia can be used to appeal to five senses—sight, hearing, reading, writing, and tasting. Students learn three times more through the sense of sight than through all other senses combined. Using more than verbal methods of communication is imperative.

As a communicator, the teacher must select the media that will facilitate the communication process. The role of the teacher is to initiate experiences, information, and skills. The role of the student is to interpret (and apply) the experiences, information, and skills. A channel or medium connects the teacher and student. In order to maximize the acquisition of new information and skills, the teacher must select the appropriate instructional aids to help make the attempt at communication effective. This is why realia is used.

Cautions With Realia

The first prerequisite in any sound educational program is to have objectives for the learners. The objectives may be developed by the teacher, student, or both working together. Once the objectives are set, appropriate instructional strategies must be selected. Only those instructional strategies leading to the achievement of the objectives should be used.

Using realia for the sake of using realia is of little educational benefit. The realia that are used must contribute to the achievement of the objectives. If realia don’t contribute, don’t use them! For example, using a model pig in order to have realia in horticulture class is counterproductive in an instructional setting.

A term frequently used to describe the overuse of realia is "gadget glamour." Simply, this means that the teacher is more concerned with the use of gadgetry than with the progress of students toward the achievement of educational objectives.

The proper use of realia can greatly increase the efficiency of the teaching-learning process. Like other responsibilities in teaching, careful judgement should go into the selection of realia.

August, 1980
There Are Many Realia

It goes without saying that no medium is good or bad simply because it is concrete or digital. In general, experiences provide significantly greater retention than digital ones. This is particularly important in teaching and learning.

Although realia are in many ways the most challenging to use, they are probably the most powerful tool we have. They can help us to support the use of digital media in teaching and learning. In an attempt to make learning more engaging, teachers often use paper, writing, questioning, discussion, and so forth. In these instructional programs, it seems important to ensure that the interactions affecting teaching and learning.

By Lloyd H. Blanton
Editor’s Note: Dr. Blanton is Theme Editor for the issue of The Magazine of the Association of the American Profession, Department of Agricultural Education, Columbus University.

Why Use Realia In Instruction?

As an agricultural education, we know a great deal about how people learn. We know that people learn by doing. We have studied, and often times, people learn better when they do it themselves. In instruction, "real things" are most meaningful. (Photograph by the Editor.)

Since learning in an active process, the action must focus primarily upon the student, not the teacher. The effective teacher thus plans and carries experiences for the student. The effective teacher thus plans an activity or a number of activities to support the use of more than one sense and cause the student to exhibit action in a learning environment. Learning how to write, thinking, remembering, experimenting, doing, writing, questioning, reading, asking questions, and discussing the more the participation, interaction, action, and involvement of the student, the more residual learning will take place. Realia are the aggregate of all resources used to promote the use of more senses, more involvement, and more action.

Principles of Learning

Anyone who has ever been involved with the teaching-learning process knows that students learn more and better when:

- there is interest.
- needs are satisfied.
- thinking is stimulated.
- there is active participation.
- more or less senses are used.
- a favorable climate of success is maintained.

These principles are put into practice by teachers, teaching will be more effective.

How does a teacher create interest? Does showing students real specimens of insects, weeds, feeds, etc., arouse interest? How much interest is generated by a bulletin board or a new exhibit in the classroom? How does a teacher help satisfy needs? Does helping students earn money, increase their active participation or judge their performance help to satisfy their needs? How can we stimulate thinking by posing a problem, or showing an item that does not work, and ask the students to figure the solution? How can we have student participation? If they touch, handle, do, judge, disassemble, assemble, design, question, calculate, write, operate, are they not participating? It should be obvious that realia can be used effectively to apply the basic principles of learning.

Research funded by the Minnesota Mining and Manufacturing Company points out that the ability of learners to retain information is increased with greater participation and increased use of realia (information) associated with the term. Researchers asked 10% of what they read, 20% of what they hear, 30% of what they see, 50% of what they put, and 70% of what they do tell the truth. What is 70% of what they do? How can they perform? Can realia help create the promotion of information? It can and could presumably apply to the percent truth and what is on the percent truth or not. Without looking back and hear. We rest not our case. The new data is 70% of what they do and truth. (Photograph by the Editor.)

As agricultural education, we know a great deal about how people learn. People learn by doing. The basic psychology of people tends to favor, privacy, sensitivity, and involvement. The basic psychology of people learn by what the teacher does. They learn from what the teacher says.

THE AGRICULTURAL EDUCATION MAGAZINE

August 1985

By Floyd G. McCormick and David E. Cox
Professor of Agriculture, McCormick is Professor and Head, Department of Agricultural Education, University of Arizona. Mr. Cox is leader of the Arizona AEC.

The Cover

Many realia are available in vocational agriculture/education. This photograph shows Allen the plant to Pennsylvania of Camel, Mississippi. In instruction, "real things" are most meaningful. (Photograph by the Editor.)

Teaching-Learning Process

A teacher is the intermediate between the subject and the student. The teacher is the one who shares the subject and the student. The teacher is the one who shares the subject and the student.

John Dewey, a proponent of the scientific method, and for education for democracy, is credited with the realization that the weighty thoughts on vocational education are based upon the facts. The only adequate training for the occupations is through regular occupations. The occupations are the only factor. The method is the change in the fact of the student. The teacher is the change in the method. The student is the change in the method.

The only adequate training for the occupations is through regular occupations. The occupations are the only factor. The method is the change in the fact of the student. The teacher is the change in the method. The student is the change in the method.

Figure 1. The Teaching-Learning Process

The teacher is the intermediate between the subject and the student. The teacher is the one who shares the subject and the student. The teacher is the one who shares the subject and the student.

T = Teacher
L = Learner
I = Interaction

One of the key points in the teaching-learning process is the interaction between the teacher and the student. The teacher is the one who shares the subject and the student. The teacher is the one who shares the subject and the student.

Motivation

What makes students want to interact and learn? Motivation is the internal and external factors that drive a person to do something. The motivational force is the internal and external factors that drive a person to do something. The motivational force is the internal and external factors that drive a person to do something. The motivational force is the internal and external factors that drive a person to do something.

As an agricultural education, we know a great deal about how people learn. People learn by doing. The basic psychology of people tends to favor, privacy, sensitivity, and involvement. The basic psychology of people learn by what the teacher does. They learn from what the teacher says. (Continued on Page 6)
Time and distance, add variety to teach present related information, among others.

The end results of using realia in the classroom are:
- greater student interest
- more thorough understanding
- increased retention, and
- more effective use of both the teacher and time.

What and Where to Use

Each form of realia has its educational use. Most, which are called
for high school vocational agricultural classes, can be broken down
into three main segments: namely, for learning (introduction); for
work (summarizing); and (3) and applications to work (summary). Realia which are effective in part of the lesson are shown below. Efficacy is to meet the needs,
time, interests, and purposes of students. 

Introduction

Realia

The use of realia does make teaching more effective. Their use provides an application of basic principles that promote the use of realia to make instruction a more effective, major emphasis is placed upon individual student supervised experience programs. One caution, however, is that there have not been proven a "cut" substitute for sound teaching plans and procedures. Even if properly planned and correctly used, realia may make your teaching more enjoyable, pleasant, and helpful.

Teaching With Real Objects

By Douglas Bishop

The effects of soil particle size on water movement in the soil is difficult for many students to understand until it is illustrated to them using a soil window similar to Object 1. Different soil textures can be placed in this window. The effect of particle size on water movement can be shown while discussing the effects of seedling and subsequent plant emergence or to illustrate the difference between the growth habits of monocots and dicots.

Stimulate Mental and Physical Activity

Objects can be used to call a student's attention to the more interesting and exciting aspects of a learning experience. Objects help show the student what a teacher expects of a student. Printed materials as a teacher's instruction. The effects of particle size on water movement is difficult for many students to understand until it is illustrated to them using a soil window similar to Object 1. Different soil textures can be placed in this window. The effect of particle size on water movement can be shown while discussing the effects of seedling and subsequent plant emergence or to illustrate the difference between the growth habits of monocots and dicots.
Teaching With Real Objects

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and dicot seeds. Observing real things happens most often when you raise the question, "Why?"

A small electric motor and a model of how a flashlight works, similar to those shown by Object 2, will help high school students understand the wiring of a complete electrical circuit. Most high school students simply don't enjoy modifying their environment. While the principles related to electrical motors and circuits will become less repetitive and less difficult to understand.

Improve Student Attitude Toward Learning

Student must be ready to learn if our teaching is to be effective. Oftentimes, students do not see their problems and needs for learning in the same light as the teacher. In this case, almost any attempt to teach will fail on dead ears. Objects can be used to dramatize the need for a certain knowledge or skill, thus creating a more favorable attitude toward learning. The external object we bring to the student's attention can, in many cases, cause positive internal consequences.

Object 3 is a large jar of internal parasites. All of the ascariads in the gallon jar are taken from the intestine of a 6-month-old calf. In this case the calf died. The damage from the outside may not show a new dimension in the mind of the students. Learning can become more efficient when the teacher has modified the conditions of learning. Students begin to see the real cause of the animal's death rather than about it in a textbook. Object 3 or any other objects which the teacher has given the students a reason for wanting to learn about the control of parasites in their animals.

Integrate Theory and Practice

High school students find it easier to understand and comprehend the principles they can see. Teaching these students, they can see that theory applied can be easier to understand. Teaching an application of theory happens when a theoretical concept in a set of conditions can be difficult to demonstrate. The simplicity of an object learns to look out the window, or try to keep the theory of parasitism may become more understandable. An object such as a parasitism place in a glass jar of saltwater. Another type is a glass of fresh water. Both are allowed to sit for 2 hours. When removed, the pot will easily illustrate the tissue while the second slice of potato is very turgid, indicating the cell membrane's quality and the specific gravity between the salt water and fresh water. The teacher can further prove the theory of osmosis by showing the results. The result of osmosis is a very meaningful and everlasting learning experience for the student.

Help Visualize Learning

It is very easy to give an inaccurate picture or a false picture in learning. Visualizing learning will be if real objects are available. Object 4 may be used to make students realize the importance of learning keys for many students. Not being able to see or understand a subject may be getting in the way of good student achievement.

Drawing and sketching in an area where there are no objects to visualize the end product. A black set of scrap paper and a black stick, tell the history of what an actual three-dimensional object would look like. Object 4 can be drawn as a front, top, and side view on a flat surface. The drawing of a finished project such as Object 5 may be used to have some students want to learn more in the individual projects. Using such projects to illustrate a potential value of the newly acquired skills. A pictorial stitch in some students' thinking is to improve workmanship and increased productivity because we can see. As we have been shown the potential results of learning a skill.

To Benefit the Teacher

Teachers as well as students benefit from the use of real objects in teaching. It is generally easier, more economical, and more enjoyable using a variety of objects rather than using the traditional textbook. Objects offer students access to a variety of resources, but they do not put their knowledge into a real situation. Students do not put their knowledge into a real situation. Teachers must not simply inform students but rather raise questions in their minds. Students will then want to seek answers.

Conclusion

Simply using real objects in teaching will not assure success for a teacher. This technique is not an alternative to an effective introduction but should be a component of the introduction. The technique does not take the place of oral communication, but it will go a long way toward clarifying the message. The teacher is here to convey to the student through the spoken word the results of learning. Incorporating the object's basic principle of active learning can help make learning an active process. The teacher becomes a resource person when the teacher becomes a director of learning rather than a disseminator of information. Teachers must not simply inform students but rather raise questions in their minds. Students will then want to seek answers.

THEME

There's More To Birds Than Just Feathers!

By James S. McCoy

and Raymond H. Morton

Editor's Note: Mr. McCoy is a Graduate Assistant and Dr. Morton is Assistant Professor, Department of Animal Science, The Pennsylvania State University.

The words are inscribed on the USDA Building in Washington, D.C. One of the important points is the importance of hands-on learning. The hands-on approach has already been successful in the teaching of laboratory skills. The problem is that a classroom to teach concepts, theories, or facts, they are frequently related to be concrete and visual. Problems often have difficulty solving the connection between a paper-and-pencil approach to a hands-on approach to a visual and actually feeding the information.

Instructors have a well-organized SOE program dealing with students. It is easy for the instructor to relate the importance of proper management skills when dealing with farms. How do instructors with urban students or students who are learning to have an animal? There is more to being a farmer than just feeding the animals. What other method is available? Teachers need to be answered. The traditional classroom instruction is going to be effective. However, the students are the classroom when dealing with animals. Good teaching practices have been shown the potential results of learning a skill.

In the classroom to teach the concepts of reproduction, nutrition, physiology, genetics, and marketing. Teachers and instructors and workshops for interested teachers who then go back to the classroom and use the quail to stimulate the interest of their students. Great success has been achieved. Some students in Detroit, Michigan, where some students have not seen chickens, much less cared for quail. It must be emphasized that the students in this program are not for the most part farm-oriented. They participate in the live with exposure to production agriculture is slight.

There are many cases where agriculture teachers across the country are teaching hands-on skills using demonstration techniques. But for the most part, only a few students actually handle animals, and

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fewer yet perform the skills being taught. This is not necessarily the fault of the aviation teacher. For example, it may be physically impossible to teach individualization of animals to 25 eager students when you have only three sheep available. By the time each student catches, restrains, and tries to inoculate an animal, the time runs short and the instructor's nerves. Limited benefit is derived from this type of teaching technique. The situation is reversed if each student has to inoculate ten sheep, but this is almost always impossible.

Is there a difference if a student inoculates a bird instead of a sheep? None. The technique is essentially the same. The student must also catch, restrain, and administer the medicine properly. Is there a difference between a flock of sheep and a flock of birds? There is no difference. The techniques of formulating a feed ration for a group of steers, pigs, or pigeons may contain different ingredients and amounts, but the techniques involved in formulating and mixing are the same.

These same questions can apply not only to handling of animals, identification, health care, culling, minor surgery, record keeping, cost analysis, diagnosis of disease, marketing animal products, and other skills needed to be successful in animal production. In all cases the answer is the same—birds can be effective rearing in teaching these skills if large animals are not available or not practical.

Any successful producer of livestock will tell you that observation is one of the keys to profit, production, and animal normal. Sheep producers know when an animal appears diseased or does not seem in its flock. Students learn nothing else from their vocational agriculture teacher, the better. It is true that observation of living organisms is the most important method in preventing problems. It is not better to teach observation skills by having a student responsible for two birds or a group of birds? What student will say or his birds get infected with a disease he will not ask "why?" In asking why, the student is discovering the reason this custom is helpful to the farmer.

Developing a small animal program is not as difficult as it may sound. Here are suggestions which may prove helpful.

1. Make sure the students are responsible for birds, and you will not become the caretaker.

2. Have students develop a record on the birds, including record keeping, skills inventories, etc.

3. The students should keep records on their birds and record the department at the conclusion of the program.

4. Gather all the facts from agriculture science.

5. Find out if there is a market for your product to be sold.

6. Have students build or purchase supplies and poultry houses.

7. Take dead birds to a local diagnostic lab or university for autopsy. If you need condition, many young people can do this work. If the information obtained is for the students, and it is for credit.

8. Use the latest techniques and concepts.

9. Check with localJanuary 1978

THE AGRICULTURAL EDUCATION MAGAZINE

Real People

Employees and employers in agriculture and agribusiness are both very valuable. The farmer and the marketing consultant are essential. The farmer and the marketing consultant are essential. The farmer's job is to grow the food; the consultant's job is to market it.

Real Objects

The best practice ground for democratic group activities is the FFA program of activities. Committee and group decisions are fostered. In addition, in-class group projects which encourage group cooperation can build student confidence. Group cooperation that produces bedding plants in the school greenhouse is an example.

Real Student Problems

Supervised occupational experience programs are excellent sources of classroom problems. First year teacher developing a class to discuss student problems relating to their occupational experience programs. Another teacher was flexible enough to sometimes adjust a daily schedule to enable the class to discuss a student problem which occurred.

Good Organization Needed

In order to plan the use of real people, object settings, paperwork, sensors, group activities, and student problems a well organized curriculum is needed. You can build a li-
Using Real-Life Experiences Helps
Make Your Program Vocational

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beady of objects and ideas over a few years, but if you learn to let your students help gather objects the time is short. Also, if you use occupational experience programs as sources for class discussion, student participation will tend to be more practical.

Support Staff

Is there a retired farmer living near school who can assist you in the long-time basic, and amount of pay? These people have the experience and can help organize in-school and out-school.

To what extent do you have "real" experiences? A good way to "beef up" real experiences.

Examples

- A clear demonstration of learning that can be
  related to students by the use of real-time data
  and equipment.
- Happening when learning students have
  the chance to select which skills to use to
  improve our plants and what is in
  types built into your local program.
- It would be a good time to "beef up" real
  "realistic experiences".

Little Things Make a Big Difference

By Gail L. Healy

Editor's Note: Dr. Healy is Assistant Professor, Department of Agricultural Education, Virginia Polytechnic Institute and State University.

Realistic daily applications are needed for efficient learning! Students need to be confronting new skills and practices that are as near as actual working experiences as possible. It is meeting this need that is so important for realistic experiences while the students are in our occupational agriculture programs that makes them employable and competitive in the job market.

Basic Skills

Students who exit our programs need basic employment skills. They must be mentally prepared to face the daily work hours. They must be socially prepared to adjust to the problems of getting along in a school, and in the job market and be able to retain these skills. Vocational agriculture is where all the other subjects I've had in school start to make sense. Isn't this the comment the dream that we teach?

The vocational agriculture program can and should exist. It is our responsibility as teachers to lead the students to America's competitive job market. Many times we pass up opportunities of develop a realistic program. To do it requires marketing skills that are meaningful and enjoyable.

Making Vo-Ag Vocational

Little differences make many forms and shapes. Teachers must work on thinking to believe they are vocational in nature. The transition for the college student to teacher of vocational agriculture is major, to say the least. College after their favorite college professors, but they lack the self-help and how can they be so important for realistic experiences?

So how do we make learning realistic? Research indicates that the method of instruction affects the time re- quired for completion of given tasks. This translates into using the skills of real or special efficient way of learning. This is predictable. It is a method of making learning realistic.

Cooperative occupational experiences are prominent as realistic methods of instruction. These methods are ideal for the placement of students in vocational programs for actual training in the ways of the work.

Unfortunately, this type of training does not exist in many local school programs. SOE programs are the tried and true realistic approach. They have been alive and functioning in our schools for many years. This method of training students the opportunity to learn skills learned in practical application. SOE is real learning, mote: "Learning to Do, Doing It Is Learning to Survive." That is the definition of vocational agriculture.

Role playing in the classroom with the classroom and/or a few invited guests makes realistic atmosphere. It is a small educational experience in spotting by a role. "The player in a mock court case." Role playing can take many forms. Did you ever try asking employers to come in and help review

The Agricultural Education Magazine

Student Teaching - A Reality Experience

By Wendy Jo Nye

Editor's Note: Ms. Nye is a graduate student at the University of Georgia.

A student teacher in a very unique classroom was exposed to reality in concepts I had only been told or had read about in my college in-struction. The concept of "doing" what succeeds was incorporated into my teachings. I became aware of those instructional applications that captured the attention of students and the student's application that captured the attention of the student and the teacher.

Lecture Versus Reality

It was assumed that lecture and note-taking as the primary source of information after spending the past four years in college classrooms. I quickly found that the teacher's lecture and the teaching used to be the best for the average high school student. I had to change my instructional approach in order to re-capture their interest in learning. I had to make the most of their great enthusiasm for learning.

I started by using key points in my classroom lectures. I tried to use information that they would need in order to perform the necessary tasks in the business world.

Students Accept Responsibility

During my student teaching experience, I noticed that students welcomed the idea of responsibilities placed on

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them when working with long-term projects. They seemed
to show an added interest and concern for projects which
they thought would see through to completion.

This instructional technique in particular enhances the
concept of reality in the classroom. By placing students
in situations which closely approximate those found in real
life, they must solve the problems as they are encountered in
order to be successful. Self-satisfaction and a strong sense
of achievement are developed in the individual.

For example, one means of adding reality to the teaching
situation in greenhouse crop production is to assign each
student a responsibility of producing one particular bed-
ding plant, such as tomatoes. In effect, this becomes the
students supervised occupational experience program even
though it is conducted in school-provided facilities. This
provides the student with real problems which
have the responsibility for solving. Tasks such
as selecting the correct media for the germination
potting, caring for transplants, and transplanting
job provide the student with an opportunity for students
While classroom lecture and book work
neither will a few weekly laboratory
lab assignments allow for contact
of the part on the student. Working toward this
develops a sense of long-term responsibility.

As a student teacher, I also learned how
to utilize supervised occupational experience
(SOE) as a supplement to classroom instruction.
I always was an integral part of the science
program in rural schools, this has not been
is conducted in school-provided facilities. This
SOE needs to be utilized more in agriculture
in order to provide the basis for "reality learning." SoE
mental learning techniques by which the student
involves and commits to long-term goals does not stop at the end of the chapter or the class period. Learning in SOE is learning on a daily basis.

Student Teaching: A Reality Experience

My student teaching experience allowed me to
more about teaching techniques by actually doing
the classroom as a teacher. At all of my teaching
period of involvement was the most important
by doing. This relatively simple concept can be
student teachers as well as to vocational agricul-
tural students. The average student will learn more by
involving in some related task.

The instructional techniques I learned while
in teaching have prepared me to utilize concepts
into the classroom. These techniques are not only
involving the students and involving them in tasks for
learning through the process of doing.

BOOK REVIEW

TRACTORS AND THEIR POWER UNITS, by Walter M. Carleton, John B. Lijdahl, David W. Smith, and Paul H. Tum-

quid, New York: John Wiley and $22.95.

This is the third edition of the text since its inception in 1931. The authors have not changed their primary objective of "providing a suitable textbook for teaching courses on tractors and their power units to students in professions of agricultural engineering courses."

Though directed to the needs of the agricultural engineer, the information provided could be useful to a student of agricultural mechanization.

The authors have done a fine job of
blending the theories of the academic
world with the pragmatism of industry.
Lijdahl and Tunquist are both professors of agricultural engineering while Carleton is involved in research
for the United States Department of
Agriculture and Smith is research en-
geineer at the Technical Center for
Dewe and Company.

Instead of a general bibliography at the end of the book, the authors have
written a bibliography at the end of each of the six chapters. The refer-
ces provided should certainly assist
the advanced student or professional
The problems located at the end of
each chapter will challenge the struc-
tural engineering student to develop
that may frustrate a cultural
mechanical and student to
build his/her knowledge. As the authors stress, students
on the book, as a text will need one prerequisite coursework. Courses
in mathematics, engineering physics,
thermodynamics or heat transfer, or
engineering mechanics should
precede the use of this book.

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From Sahara To College: Realia Are Necessary

By Peter B. D녀ischach
Editor’s Note: Mr. Drischach is a graduate stu-
dent at Clemson University.

College Courses

Directing thoughts back to personal experience, I could
trace all of my learning back to realia. Directly applying
thoughts to vocational agriculture, two particular areas
come to mind. One is the teaching of bovine artificial
semination by realia versus some other media. In my case,
we had diagrammatic "handouts," pictures, and even a life-
size model cow in the classroom; but it was not until labor-
atory that I actually learned the process. By observing my
classmates, I am convinced that I was not unique.

Judging livestock is another area that demands realia. A
professor in college, who had taught me many years and
developed the reputation of being a good judge of livestock
and an excellent teacher of the subject, told me once that
there was absolutely no substitute for realia. In spite of all
there were at the disposal of the professor claimed that
students do not learn to judge livestock until they are actu-
ally called on to judge live animals.

Use Realia

For best results, subject matter should be based directly
on realia whenever possible. The further the instruction is
from reality the harder it becomes to learn and the less it
will be retained — and retention is the ultimate goal.

Classes can be drawn from the incidents cited above to
agricultural education in the 1980s. The first consideration is
that media may serve only to confuse rather than clarify.

With scheduling difficulties and rising costs for Desert
Education making quality field trips difficult, the teacher
who is teaching vocational agriculture must create new and innovative
ways to bring realia into the classroom. As vocational agricul-
tural teachers, we must put forth a determined
kind where and when various media are actually fulfilling the
teaching objectives. Use of more abstract media is es-
ential when concrete realia are unavailable or impractical.

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THE AGRICULTURAL EDUCATION MAGAZINE
THEME

Using Real Situations For Maximizing Learning And Retention

There is no substitute for real learning situations to motivate student learning and retention. Students who are successful leaders in the community and employers in their vocations find real opportunities. Real situations and real materials obtained directly from the community served by the school district.

Advisory Committees

Advisory committees are essential in planning and organizing vocational agricultural programs which arise out of community and resource needs. In order to be effective, the school district must be represented on these committees.

Land Laboratories

Employers are requiring employees to be able to use the latest aid and agronomical research. The local Red Cross should be contacted to teach Red Cross trained training to agriculture students. The county Cooperative Extension Service and training session for agriculture students, which the public has to offer to those interested in the growing of beef cattle. The third chapter deals with the restoration of the Spanish wool industry.

Community Services

Vocational centers and local schools are equipped to offer community service programs that add value to the programming. Community service and instruction is also given to the students who reach the level of proficiency or factors which have been developed in the agricultural program.

The Youth Conservation Corps (YCC) program provides summer work for youth fifteen to eighteen years of age, to be a work/study situation consisting of three months. Enrollees are on the job forty hours a week for thirty-five hours at the minimum wage. Ten hours per week for classroom instruction and fourteen hours in the field. Enrollees are in which the state will fund for additional high school classes. It would be an outstanding reference for the vocational agriculture teacher and a very fine addition to the vocational agriculture library.

Adult Education

Successful vocational agricultural programs offer adult education courses in the specialty areas: farm production and management, animal science, conservation, and horticulture. It is important that these courses include laboratory work, not just lecture courses. Guidance departments, young farmer organizations, and other similar agencies should be involved in the planning and implementation of these programs.
Letters To The Editor

"Letters to the Editor," a new feature of the Magazine, which is being tried on this issue. It is intended to encourage dialogue among readers of the magazine. The 1980 issue. Select letters will be printed without regard to length. AV, Mississippi State, MS 39762.

Editor:

I am writing in reference to the cover picture on the June, 1980 issue of the Agricultural Education Magazine. The question who is the picture for this publication of students working on agricultural equipment.

The 1979 issue of the FFA calendar had five or six pictures of students working on personal equipment. Now, there are the same to happen. You, and I note that the photo came from the National FFA Center which makes it even worse.

We in the agricultural mechanics field work extremely hard to promote the proper use of personal protective equipment, especially the wearing of industrial quality eye and hearing equipment for students. I have been reading, word by word, the seniors' stories. For years, we have required and enforced the wearing of industrial quality eye protection during the National FFA Agricultural Mechanics contest. Today approximately 10 states have safety laws or codes. A year ago I wrote an article, and it was published in the May, 1979 issue of the National FFA Farmer magazine. I have submitted an article for the September issue of FFA Magazine on the latest ANSI Standards for eye protective equipment. Yet it seems our written and spoken words fall on blind eyes and deaf ears.

It really bothers me to see a picture such as this young man working on a motor. I realize the machine is stopped. But can I assume he is working on it? What is the risk when the eyes are open? In addition, the most certain should be wearing chemical proof gloves for hand protection. Any better as he is tightening the engine of his car. I mean to say, what is the reason for the most important portion of the machine?

The June issue is of particular concern to me today. Your editorial and the survey results are important. It's time for some action. The PACE program in my school will be impacted. My students were surveyed. My students were surveyed. My students were surveyed. My students were surveyed. My students were surveyed.

I read about supervising SOE, etc., but none of them found the chief reason for year around programs. It is important to develop computer-assisted instruction. Are you familiar with the software available for your students? Do your in-service programs prepare you to develop computer-assisted instruction? I attended the recent computer instruction conference and heard several speakers talk about the increasing availability of software and the need to develop computer-assisted instruction. What is our contribution to these efforts?

The impact of Computers

When I talk about the computer as taking the time to teach, does anyone understand me anymore? I am referring to the time to teach more than instructional development. I think it is time to teach. I think it is time to teach. I think it is time to teach. I think it is time to teach.

I have always been an advocate of the computer as a tool for teaching. I have always been an advocate of the computer as a tool for teaching. I have always been an advocate of the computer as a tool for teaching. I have always been an advocate of the computer as a tool for teaching.

The time is long gone when educational technology can justify existence of a summer program in the student's educational experience. The computer is what makes educational technology work. The computer is what makes educational technology work. The computer is what makes educational technology work. The computer is what makes educational technology work.

The role of the computer in support of the curriculum does not mean that it can "think" on its own. It has to be programmed to make appropriate responses. This means that you, the teacher, or a "smart program" (one developed by the computer with "prompts" so that it will know what to do when the student responds.

These prompts, to the student, appear to be the computer talking. The student actually thinks they are talking to the computer.

As many teachers are finding, the machines and the software are oriented towards the novice who has little or no programming experience. They find the computers easy to operate with even the simplest languages as BASIC, yet flexible enough to satisfy the advanced students.

Ways the Computer Can Be Used

The computer is used in a variety of ways, ranging from simple drills to adding to a building complex ecological models which show results graphically. These programs include storage of information, testing, tutoring, computing, and games.

Drill and Practice. This has been extensively applied to math instruction. The fundamental purpose is to reinforce the more automatic student recall or recognition of certain aspects of the idea previously taught. This type of program does not usually come to mind with immediate correction of answers, or answers to be obtained on another program at a later time.

All of us have students who need additional drill and practice in all teaching areas. Those who perform poorly should be given additional problems to solve in a weak subject area. The drills and practice should be simple as a set of randomly selected questions. The
Computer Assisted Instruction in Agricultural Education (Continued from Page 19)
gifted students who use these same questions to prepare for a test or exam. A student who missed a test could make up the test through use of the computer.

Tutoring. Tutorial instruction is generally used to review ideas which are not comprehended by the student. This type of computer program attempts to simulate a tutor as it introduces, explains, gives hints and examples, asks questions, evaluates answers, diagnoses difficulties, provides reinforcement and feedback, and selects appropriate placement of the student into the next level based on previous achievement. This gives the student a sense of participation since the responses are generated by the computer and not the instructor.

Tutorial programs have been prepared which assist the student in solving problems involving growth, harvest, and torpense. Similar programs are being developed in many areas of agricultural education. The advantage of the computer in this area is that it takes time to develop such a program. Once developed it can be used over and over again.

Simulation. In cases where a pattern of behavior can be recognized, the computer can be programmed to simulate a real situation. It can act out any of the problems in detail, introduce random events and events, and predict the results of these events as a series of decisions. It allows the user to study the problem free of any variables that are difficult or dangerous to work with in reality. It can be used to study a problem over a period of time. Simulations greatly extend the field of education, broadening educational experience.

Simulation can be effectively used in the area of farm management. Simulation variables can be changed, which lends itself to controlled simulation. One such program on the market today is called "Complete." This program enables the user to conduct an investigation and carry out experiments with no delay usually associated with growth experiments. It includes the following: (1) simulated growth mixture study of the interaction of any two kinds of plants or crops; (2) dwarf pea and oats; (3) different plant densities, 4) interaction below the ground - interaction of subterranean plants and crops; (4) interaction of plants and crops; (5) effects of crowding on plant growth; and (6) the interaction of the laboratory in conjunction with the computer.

Game. Most of you probably have either played or observed computers in this area. Games have been found to motivate students, teach values, and stimulate learning. There are simulations featuring competitive settings where one or more students can play.

Gaming as well as simulation can be used by those students with limited supervised occupational experience and their programs can be used to give the students an opportunity to practice their knowledge of practices discussed in the classroom.

Testing. The computer can be programmed to serve as a test generator and administrator. Each student can be tested for his maximum ability with the computer determining the number and difficulty of items.

Recording Data. Transferring in high to junior level students seems to be a problem. In many schools, the computer can be used for data and retrieval of data. It has an extensive memory capability, storing the information once it is stored, the ability to communicate, and it is easy to update its memory files.

As we advance in skill development through competency based instruction, this type of equipment will be essential for more accurate assessments of the computer's performance. It is also best for this paper on computer assisted learning and educational curricula. The students who make up the group will be looking for new and better ways to learn, and the students who are involved have a greater understanding of the subject matter.

Planning the Middle School. The middle school is the school between the elementary school and high school. It is comprised of grades 6 through 8. Others may consider the middle school as a new experiment, but it is a reflection of the changes which have taken place in the school system: first grade that is, all other schools have grades through 4 and names were used to describe the school depending upon the person referring to the school and who person is the name of the school that those grades. Three different names for the schools between element­ ary and secondary education are used: middle school, intermediate school, and junior high school. This report will follow the term, middle school.

Middle school curriculum is a dynamic aspect of the school. In order to plan effective curriculum, it is important that the students need for cooperation with elementary, middle, and high school curriculum. The report that an elementary school curriculum may be as follows:

- "What kinds of work will the students do in your elementary school curriculum?"
- "How do you plan to work with other elementary school teachers to develop a curriculum that is valid for elementary students?"
- "What kind of experiences will your middle school curriculum include that are new and different?"
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The Agricultural Education Curriculum

The agricultural education curriculum is both educational and vocational. Agricultural education classes are considered by some as vocational; Agricultural Science and Mechanics classes are described as technical and exploratory in nature. The one person that the success of agricultural education programs depends on the students who are not interested in agriculture. To prepare the students for the future, agriculture education programs need to be restructured. A major career classification in agricultural education is described as agricultural supply and services, agricultural mechanics, agricultural teachers, and agricultural products processing and marketing.

The Agricultural Education Curriculum includes a variety of courses that prepare students for careers in agriculture or for further education in agriculture-related fields. These courses range from introductory courses in agricultural science, animal science, agricultural machinery, plant science, and soil science to advanced courses in agricultural resources.

During classes in Agricultural Science and Mechanics, students are given experiences using basic principles of the sciences, mathematics, and the social sciences to understand the agricultural situation. About half of the course is (Continued on Page 22)
Agricultural Education Curricula In The Middle School

(Continued from Page 21)
devoted to agricultural mechanics. One source lists the major learning areas in Agriculture Science and Me- chanics as agricultural organizations, supervised experience program, agriculture mechanics, principles of plant science, rural and suburban leadership, leadership training, and resource conservation. The student may receive personal guidance and counseling which will help him/her select the advanced course leading to entry employment in an agricultural occupation.

The FFA is described as an integral part of the curriculum of vocational agriculture. Member development is the result of leadership development. The FFA offers the opportunity for students to become productive citizens in our democracy. The specific aims of FFA have been designed to develop the student in areas of leadership, citizenship, character, scholarship, improved agriculture, cooperation in agriculture, thrift, recreation, and patriotism.

The Teacher

What are the occupational tasks of the agriculture teacher? One source of information lists seven major duty areas for teachers. The duty areas are instruction, supervision, curriculum and program development, administration, evaluation, public relations, and professional activities. A survey identifies the following nine activities as receiving highest importance for agriculture teacher occupational tasks: (1) develop good working relationship with instructors, (2) maintain a facility which is conducive to learning, (3) attend school staff meetings, (4) keep abreast of current agricultural developments, (5) participate in school open house and/or parent-teacher conferences, (6) take a two-week summer vacation, (7) teach in school classes on agricultural subjects, (8) require students to maintain a supervised experience program, (9) involve students in FFA activities. Summary

In this article, information from a number of sources has been summarized. Curriculum has been defined. Information has been supplied for planning the middle school curriculum. The agricultural education curriculum for the middle school has been explained. Important responsibilities have been listed for the vocational agriculture teacher.

BOOK REVIEW


This new text provides an introductory treatment in the area of dairy farm production and management. Numerous illustrations and drawings highlight points of discussion. The book is based on a commercial farm enterprise.

The text is divided into fifty teaching units that make up its ten major headings. The headings include selection, breeding, replacements, milking, milk handling, records, disease, housing and feeding. Each teaching unit contains suggested student activities, student self-evaluation, review questions, and a list of advanced student projects. The text has a companion Instructor's guide, 115 pages, which contains a pre-test and comprehensive post-test, a source list of supplementary teaching aids, 26 overhead transparencies, answers to the test, and addresses of information in dairy associations.

The book's format, together with the quality content, makes Dairy Farm Management a most valuable teacher resource. The author of this book is an experienced former teacher of vocational agriculture in a dairy production region, who highly recommends this text for consideration by teachers in similar regions. Teachers who have a few students interested in dairy production should find this book useful as a self-instruction guide.

The author, Thomas Quinlan, is currently Vocational Agriculture Instructor in the Long Prairie School District, Long Prairie, Minnesota. He taught dairy production at Long Prairie for nine years prior to completing this book.

Dairy science technology also have made recent sources of dairy production material a necessity for the five-day teacher. This text provides up-to-date introduction to all phases of dairy production. Special stress was given to the scientific approach to feeding, breeding, and herd hygiene.

The book would make an excellent high school or introductory dairy text. It should be easy to read and understand for beginning students interested in dairy production. High school vocational agriculture teachers should find the teaching aids in the instructor guide quite valuable for classroom use.

James W.legacy, Agricultural Education, Southern Illinois University

...continued as follows...