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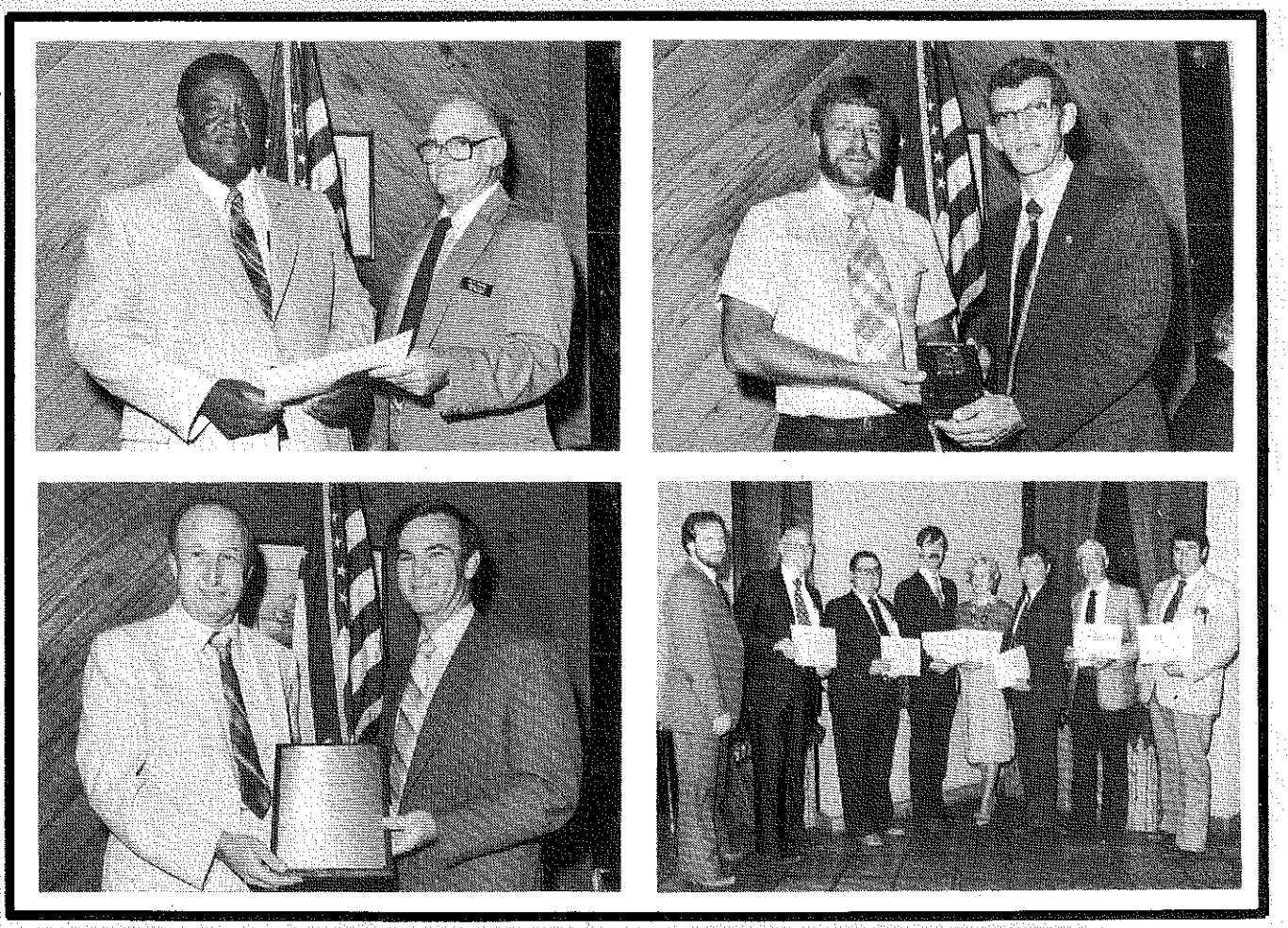

THEME: Vocational Agriculture and the Handicapped Student

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EDITOR'S PAGE

Rewarding Exceptional Teachers

BY LARRY E. MILLER, EDITOR

(Dr. Miller is a Professor in the Department of Agricultural Education at The Ohio State University.)

A particular dilemma seems to confront teachers of vocational agriculture. The dilemma is one of attempting to provide vocational agriculture of excellent quality which results in recognition through our usual means, and simultaneously serving the needs of disadvantaged and handicapped students. A lot of soul searching results from these ethical and moral deliberations.

Assessing Quality

What is a quality program of vocational agriculture? Frankly, the most rapid means of achieving a measure of distinction for excellent quality is through the achievement of outstanding individuals through the FFA. What is the relationship between the quality of the instructional program and such variables as number of American Farmers, number of State Proficiency Award winners, number of State Officers, contests entered or won, etc.? One would quickly grant that other measures of quality are more difficult to quantify.

The problem for the profession is that the measurement of instructional excellence is one that goes beyond contest and awards, but is difficult to ascertain. How, then are teachers to receive recognition for excellence?

Couple the complex issue of ascertaining quality and the need to achieve recognition with the needs of disadvantaged and handicapped students and a problematic situation evolves. The crux of the matter is really whether intrinsic rewards can equate with the extrinsic ones.

Writers in this issue highlight the personal satisfaction and self-fulfillment they have realized through their work with the disadvantaged and handicapped. Will these intrinsic rewards continue to sufficiently nourish the needs of these teachers for recognition? Given the situation where teacher peers receive ample extrinsic plaudits through traditional recognition systems, will the profession be able to retain the talented teachers of the handicapped?

Priorities

How does a teacher set priorities when handicapped students are mainstreamed? Today, this minute, one student needs your time to complete a state farmer application; a handicapped student needs your time to interpret a computer program. Which one do you help if you only have time for one? Which way do you turn? Who will you help? Who needs you the most? Where are your priorities to be placed? These questions can only be answered by you, at that time and at that place.

The problem may be in how you decide. A correct answer is not proposed. The example is posed to exemplify the dilemma because such hard decisions are faced routinely by teachers of vocational agriculture.

Who Rewards?

The immediate resolution would appear to be to establish other extrinsic rewards systems. Who should tackle such a monumental undertaking? An equitable system maintained by professional associations, such as the NVATA, would be truly unmanageable. The only system which could really be managed would have to occur at the local level where the quantitative data related to performance can be appropriately supplemented with qualitative information. Strategies to develop excellence in education are springing-up across the country. Excellence among teachers should receive no less emphasis. The identification of and reward for that excellence must occur.

Teacher educators and supervisors can aid in resolving the problem. Teacher training and inservice programs which clearly delineate the professional problems teachers may encounter can help. Programs should explicitly prepare persons to appreciate the intrinsic rewards accruing from the role of the teacher. These groups can also provide appropriate recognition to teachers on a personal basis or in a group setting.

This issue focuses upon teaching the handicapped. Authors describe strategies they have employed to be successful. We have a responsibility to educate each individual placed in our charge to the best of our ability, so we need to learn from their successes. Their successes likely result from their excellence and we need to determine how best to acknowledge excellence in working with disadvantaged and handicapped persons. Exceptional teachers need rewards.

The Cover

Educators need to be properly recognized for teaching excellence as these Lousisiana teachers are being recognized. Developing a system to recognize teachers of the handicapped is a challenge faced by the profession. (Photographs courtesy of J.C. Simmons, Chief, Vocational Agriculture/Agribusiness Section, State Department of Education, Baton Rouge, Louisiana 70804.)

THEME

. . . Are They Being Served?

By Dennis C. Scanlon and Connie D. Baggett,
Theme Editors

(Editor's Note: Drs. Scanlon and Baggett are Assistant Professors in the Department of Agricultural and Extension Education at The Pennsylvania State University, University Park, Pennsylvania 16802.)

On November 1, 1975, Public Law 94-142, The Education for All Handicapped Children Act, was signed into law by President Gerald Ford. On that date, it became a violation of federal law to deny any handicapped child a free and appropriate public education.

Ten years later the question arises as to how far we have really moved on educational rights for the handicapped. In a recent study by the authors, the following statements were made by teachers, counselors, and administrators during the interview portion of the study.

- — "Mainstreaming is very good, as long as they (special needs students) are in someone else's class."
- — "There is no need to put computers down in the special education class, even though they were bought with special needs monies . . . they can't even read."
- — "Once students have been mainstreamed, they are no longer special needs students, and we don't keep particular records on them."

Although this is not the attitude of the majority of secondary school employees, it is still disturbing to hear these types of statements by educated and responsible individuals. An elder statesman in the U.S. Senate once remarked that you could legislate everything except attitude. Indeed, we have legislated everything from facility and curriculum modification to mainstreaming and IEP's, but still we have done very little to improve teacher attitudes toward educating the handicapped.

In a recent study by Baggett, Scanlon, Curtis and Mallilo, it was found that:

- — 96 percent of the vocational agriculture programs in Pennsylvania have not developed or purchased curriculum materials or altered instructional methods to accommodate the special needs students enrolled in their program.
- — In addition, school officials claimed cooperation occupation experience placement and/or employment for over 300 special need students, yet the reseachers found less than 10 percent of those students actually on-the-job.

Obviously, legislating dedication, concern and educational placement and programming has its limitation. Therefore, let us turn our attention to a more basic rationale for serving handicapped students.

Basic Tenets

Gerald Leighbody suggested that there are three basic tenets upon which the rationale for vocational education rests. The first, a philosophical tenet, is based on equality of educational opportunities. Leighbody suggested that educational opportunities are for everyone, not just those entering the work force or going to college. Mainstreaming the handicapped into a normal educational setting may not be sufficient to insure educational equality. As educators, we must be come less concerned about the numbers of students placed and more concerned about the quality of the educational placement.

The economical tenet of Leighbody's rationale suggested that those trained for a job become productive and contribute to the economic stability and growth of the country. Today, there are 26 million Americans classified as handicapped. Is there any doubt that the handicapped, as a trained workforce, could make a significant contribution to all phases of the American economy? Yet, today unemployment among the handicapped is staggering.

Finally, the third tenet of Leighbody's rationale is social. He argued that workers who are trained for a job and become wage earners develop self-respect and confidence in their own ability, thus becoming a more useful and contributing member of society. The handicapped have both the right to develop to the fullest extent of their abilities, and the responsibility to use those talents to improve the society in which they live.

Appropriate Education

Legislation has played a significant part in insuring that special populations receive an appropriate education. Public Law 94-482, The Education Amendment of 1976, defined the different handicapping conditions and set aside 10 percent of federal vocational dollars for special needs populations. Over the past several years, the set aside has increased dramatically and federal dollars have flowed into educational systems in the name of special needs students. Since 1963, the number of handicapped students in vocational education has increased by approximately 96 percent. As we look at the number of students and dollars being expended on vocational programs for the handicapped, we must ask the question, "Are they being served?"

Vocational agriculture has a long record of helping students with special needs; however, attitudes among agricultural teachers and all teachers have changed. Even with legislative mandates, it is sometimes an uphill battle to insure that special populations are being adequately served.

Congress recently passed and the President signed the new Carl D. Perkins Vocational Education Act of 1984. Although this new act supersedes the previous legislation, the basic philosophy and urgency remain. The second paragraph under the statement of purpose states:

> . . . assure that individuals who are inadequately served under vocational education programs are assured access to quality vocational education program, especially individuals who are disadvantaged, who are handicapped, men and women who are entering nontraditional occupations, adults who are in need of training and retraining . . . .

Once again, vocational programs are asked to take the lead in providing special needs populations with an appropriate education. There is increased financial support to encourage local educational agencies to do an effective job. We in vocational education, and especially vocational agriculture, have the legislative mandates urging us to do an effective job. Looking back on the comments at the beginning of this editorial, we are concerned about what historians will record about vocational agriculture and special needs populations over the next several years. Will the old prejudices against special needs students prevail or will history record that great strides have been made in the education of all of America's youth and adults.

We can help determine how history will be written by doing our part in the big scheme of education. This issue is devoted to ways in which teachers and programs have been successful in this endeavor of serving our handicapped populations. You will find working examples to guide you as you strive for excellence in vocational agriculture.

THEME

Teaching The Disadvantaged and Handicapped

By Rebecca S. Downey

(Editor's Note: Ms. Downey works with the Employment Training Program at Valley Vocational-Technical Center, Fishersville, Virginia 22939.)

When I am asked what my occupation is, I reply that I teach horticulture. If questioned further, I continue to explain that my students are disadvantaged and handicapped. Some people automatically have negative thoughts. Sometimes I hear responses like, "You must have a difficult job" or "That wouldn't be for me." What they do not know is that I have best job in the entire school system.

The characteristics of a disadvantaged student might include one or more of the following: students come from broken home situations, some have been retained a grade level or more, many are disinterested in school, others may lack personal goals, are underachievers, lack self-confidence, come from low income families or have a negative attitude. Handicapped students may be mentally or physically disabled but none of my students are so severely handicapped that they cannot function in the laboratory.

While these characteristics may seem negative, these students possess a wealth of positive characteristics as well. Finding those abilities is like digging for treasure. It is very fulfilling when underdeveloped abilities are recognized, expanded and enhanced. The positive characteristics of the disadvantaged and handicapped students far outweigh the negative. These students have an ability to be sensitive and caring individuals, an eagerness to please others as well as themselves, and a strong sense of loyalty. They can grow to be responsible, honest citizens who are gainfully employed and form the backbone of our society. What these young people need in order to become responsible adults are persons that will help them find their talent and abilities and develop them.

Needed Teacher Qualities

What qualities must one possess to teach the disadvantaged and handicapped? First, the teacher must love to teach. This is certainly no place for the half-hearted teacher. The instructor is teaching every minute of every day by conventional teaching methods as well as by example. The teacher is constantly being observed and is a definite role model. Second, the teacher of the disadvantaged and handicapped must be creative. These students learn by repetition. Teaching as well as learning can become boring if material is presented in the same fashion.

The creative teacher is eager to present material in different ways. This leads to the next quality a teacher should have: enthusiasm. These students usually come to school with a "ho-hum" attitude. It is important for the teacher to dispell this apathetic attitude and replace it with an eagerness for learning. When the teacher presents material in an enthusiastic and creative manner, students retain the information longer and with more detail. While the classroom should be an alive and exciting place, caution must be taken to prevent the classroom from taking on a carnival atmosphere.

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Teaching The Disadvantaged and Handicapped

(Continued from Page 5)

Adaptability and versatility are also important qualities for the teacher to possess. The students are usually subject to mood swings. When students enter the laboratory, the teacher can tell if they are in an "up" mood or a "down" mood. Sometimes the activities for the day may need to be changed immediately to best meet the needs of the class.

Three other qualities that are necessary for a successful and satisfying teaching experience are patience, optimism and a sense of humor. There are those days when it seems everyone is out to see who can make the teacher lose his/her cool. Without a strong feeling of optimism, the teacher could not face the next day. Positive changes in students unfold slowly and it is the pleasure of watching these changes that keeps the teacher of the disadvantaged and handicapped going. Above all, a sense of humor helps get the teacher through some tough spots. At the same time, students will quickly learn it is okay to laugh with each other but not at each other.

All of these characteristics are important but consistency may be the most important. Consistency is a major element that is missing in these students' lives. Inconsistency unleashes havoc in the classroom. Students need to find that the teacher consistently treats them in the same manner. Rules need to be enforced and discipline should be strict but fair.

Students often complain about rules but in reality they want a framework within which to work. These young people respect the rules and the teacher because they know what is expected of them.

All of these qualities, the love of teaching, creativity, enthusiasm, adaptability and versatility, patience, optimism, a sense of humor and consistency are key ingredients for a successful teacher of the disadvantaged and handicapped. These qualities may be necessary for all teachers but for teachers of the disadvantaged and handicapped they are absolutely essential.

Initiating A Program

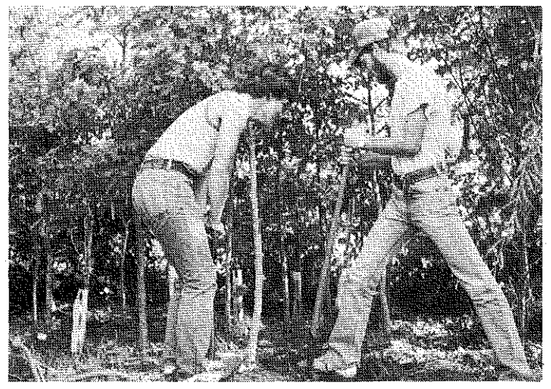
I teach in a regional vocational center where two and three year vocational programs are offered. This center opened in 1973. To serve the disadvantaged and handicapped student, the Employment Training Program (ETP) was organized in 1979. Prior to this, a building maintenance class that served twenty-five students was the only class available for disadvantaged and handicapped. When the ETP was begun, the only available facilities were old army hospital buildings which had housed the Woodrow Wilson Rehabilitation Center in the 1930's and 40's. The buildings were in need of repair and our first students did most of the remodeling of these outdated facilities, mostly in the areas of plumbing, electrical work, and carpentry.

When we opened our doors in 1979, we offered horticulture, woodworking, small engine repair, electricity, plumbing, industrial sewing, commercial foods, and some pre-vocational classes for younger students. We had an enrollment of 140. Since that time, auto servicing has been added and other programs are under consideration for next year. We now have an enrollment of 280 students with a waiting list from all three school divisions that the ETP serves. These students come from twelve area schools.

Our schedule is a half-day block where students return to the home schools for lunch and academic classes. The afternoon block is made up of different students who have had their academics in the morning.

Our horticulture program began by sharing the horticulture department located in the vocational center. The facilities were excellent but as our program expanded, we needed a place of our own. The old army morgue was unused and located in the area of the other ETP buildings. The building trades classes renovated this dingy, drab building into a bright cheerful classroom. After the floor and plumbing were completed for the greenhouse, some of the faculty members erected a 24' x 48' polyethelene greenhouse. We are especially proud of this facility since all the work was done by faculty and students.

When I began teaching in 1979, I found there were few curriculum materials available for teaching horticulture to the disadvantaged and handicapped. As a result, I have developed my own program and have written it up in competency based form. Each year changes are necessary for growth within the program. By using the competency based format, I can make these changes in an orderly fashion.



Teaching in varied settings helps improve students' interest and attitude. (Photograph courtesy of James D. White, Oklahoma State University.)

Student involvement in resale projects encourages the development of pride in the product. (Photograph courtesy of Oakcrest High School, Mays Landing, New Jersey.)

The Curriculum

Our program is similar to many other horticulture programs. We raise mums, poinsettias, carnations, spring flowering bulbs, geraniums, hanging baskets and a variety of bedding plants. The students are taught the basics in plant propagation, plant identification, plant care, lawn care, some landscaping, and principles in vegetable gardening.

Another similarity is that we have a resale account. All monies received from crop and project sales go into that account. A great deal of work is required to keep the resale account in the black.

One source of income for this account is our fall decoration project. The students create wreaths, mats, baskets, and decorative brooms. These designs are made from dried and preserved materials. The students may check these items out as they would a library book, take them home to sell with all money received going into the resale account. This first project teaches design concepts, eye-hand coordination, the use of florists tools and mechanics and merchandising. The intangible rewards the student receives are the compliments and praise from friends, parents, teachers, and others for making something so creative and taking responsibility for the merchandise and money.

Another popular project is corsages. We construct corsages for school functions such as homecomings, parent's night, and banquets. Our students are proud when they see cheerleaders and others wearing the corsages they have created.

During the Christmas season, our laboratory is transformed into a Christmas wonderland. We make a variety of pine cone and permanent wreaths, door and table arrangements, pine cone trees and an assortment of other holiday decorations. An open house is held one day in early December. Parents, friends, and teachers are invited to visit and purchase Christmas decorations. This has proven a very successful project even though we never advertise to the public. We do not advertise because we do not want to jeopardize our friendship with the area florists and garden centers by being in direct competition with them.

After the Christmas and New Year's holidays, we begin to think about Valentine's Day. We sell sweetheart bud vases and corsages all constructed with silk flowers. In the spring, Easter and Mother's Day corsages and small silk arrangements are sold.

The grand finale in the spring is our bedding plant sale. We grow flowers, vegetables, perennials and herbs. All sales are handled by students. These resale projects take much time but the experience of growing, creating and merchandising is an important part of the learning process.

Uniqueness

The above characteristics make us similar to other horticulture departments, but we are also very different. The disadvantaged and handicapped student has a short attention span. This affects how much time is spent in the classroom. Class is kept short and to the point. Student interest is kept by using a variety of teaching techniques. The teacher must have a command of the subject matter and have an appealing approach to presenting the facts.

Another difference of our program is that a great deal of time is spent concentrating on employability skills. One of the goals of the ETP is to enable a student to become employable. These skills are taught by using horticulture principles and techniques. The importance of good attendance, getting along with others, staying on task with and without direct supervision, learning to follow directions and practicing good personal hygiene are stressed daily. Much time is spent discussing job opportunities, job interviews, and keeping a job. Included in the classroom work is also a unit on banking and money management.

Teaching in a vocational center has its definite advantages. I have a two and one-half hour block in the morning and a two and one-half hour block in the afternoon to work closely with students. No class has more than twelve students. This gives me an excellent opportunity to get to know each student well. I can meet many individual needs that cannot be met in a fifty-five minute class period. I have an opportunity for communication with students. Together, the student and I can build a positive relationship.

Support

Our program has enjoyed success only because of a strong support group. The ETP has its own assistant principal, guidance counselor and job coordinator who have helped many of these students become independent, well adjusted young people. There is not enough I can say about strong dedicated persons at the head of our program helping these students every day. The principal of the vocational center is always helpful and is proud that such a program can be offered. The advisory council offer help and support and are our goodwill ambassadors in the community. The superintendents and staffs of all three divisions which operate the school staffs have been very supportive and have helped us grow in new directions. In these days of budget cuts and curriculum changes, the school board has seen the need for this type of alternative program and has been very supportive and kept the budget ax from falling on those who need and deserve the opportunity for vocational training.

The Future

The future looks bright for those young people who are disadvantaged and handicapped. More school systems are seeing the value of the alternative program. Working with these students is not always an easy job, but it is a fulfilling one.

Many of our students come back to visit after completing ETP. Some may have gone on to a two-year program at the vocational center. Some may have corrected attitudes and behaviors that have allowed them to take a full academic schedule at the home school. Some may have graduated from high school. Some may have left high school and are gainfully employed. It is then that you realize something that was said or done in the classroom may have made a difference in these lives. These young people have not only gained self-respect but respect for others and the world of work.

These young people have enriched my life as much as I sincerely hope that I have enriched theirs. By sharing this information with other concerned teachers, I hope that we may have a more positive attitude toward the disadvantaged and handicapped students that come to our classroom in the future.

THEME

Plants Breed Success

Within the last fifteen years there has been increasing concern about the education of mentally and physically handicapped children. Laws have been passed to uphold the right of every child to an education, and other laws have clarified what should comprise an educational program. In Pennsylvania, a regional organization by the name of the Intermediate Unit (IU) has been established to work in conjunction with local school districts to design and implement programs for handicapped children. Statewide, these programs deal with special education, resource room and itinerant classes. The IU 10, though, in Central Pennsylvania has added another type of program to this list: vocational programs for the handicapped student. Presently, there are five such programs scattered throughout the region under the jurisdiction of IU 10: two deal with ornamental horticulture and three deal with the construction trades. The first such program to be implemented was a construction trades program started in 1974. The most recent addition was a horticulture program started in 1981. It is this program that will be the focus of this article.

By Robin Good-Hamilton

(Editor's Note: Ms. Good-Hamilton is an Instructor of Vocational Agriculture at Centre County A.V.T.S. in Pleasant Gap, Pennsylvania 16823.)

The Program

The primary focus of the horticulture program is on greenhouse crop production, with flower arranging and landscaping playing secondary roles. The class is held in a Vo-Tech greenhouse in Pleasant Gap, Pennsylvania. Mentally handicapped students are drawn from four area school districts and attend during their high school years. The class of ten to fifteen is comprised of Trainable Mentally Retarded (TMR), Educable Mentally Retarded (EMR), and Learning Disabled (LD) students.

These young adults attend the horticulture program in one of two ways. TMRs participate in the program two days per week while remaining in their special education classes in their home school districts the other three days. EMRs and LDs, on the other hand, attend the greenhouse program on an all-day, nine week basis. They are in the greenhouse for two, nine-week sessions per year and at their home school districts taking math, English, etc., for the remaining nine-week sessions. The program is set up so that these students alternate between the greenhouse and the home school throughout the year. During a typical school year, the horticulture program accommodates fifteen to twenty students: about eight of these are a bi-weekly group of TMRs and the rest make up two, eighteen-week groups of EMR and LD students.

Goals of the Program

The philosophy of the greenhouse program is based on one concept: to help the mentally handicapped student procure those skills that will enable him or her to become a functional member of society. Therefore, the emphasis of the program is not to produce horticulture experts but to help each child develop in three broad areas.

One of these areas is economic independence. Through the learning and practicing of various greenhouse operations, the student learns general skills that can be applied to an employment situation. Employment, of course, means financial independence.

A second broad area is social competence. The greenhouse environment achieves this in two ways. First, the same greenhouse operations that foster employability also foster skills in day-to-day self-care at home and in public places. Secondly, the students are in an informal learning arrangement which allows for a great deal of interaction with the teacher and classmates. The more interaction experience a student gets; the easier it is for him/her to transfer this ability of interacting to society at large. The third broad area is aesthetic awareness. Being around plants and caring for them brings about an appreciation and respect for living things.

Greenhouse activites encourage the development of psychomotor skills. (Photograph courtesy of Dick Weber, Louisiana.)

The development of manual skills helps students apply theory. (Photograph courtesy of Joliet Junior College, Joliet, Illinois.)

Applying Homeschool Knowledge

These three general goals are achieved through the implementation of five specific areas that structurally comprise the program. The first area involves taking the knowledge that the students have learned at their homeschools and applying it to various greenhouse operations.

For example, having students use their knowledge of math and measuring as the basis for calculating and mixing fertilizer ratios, or having students employ their writing skills to keep records of plant observations. In doing this, students are reinforcing their knowledge and are learning that knowledge is often applicable to a variety of situations.

Practical Skills

A second specific area of the horticulture program is practical greenhouse skills, the day-to-day activities necessary in operating a greenhouse: watering, fertilizing, propagating plants, transplanting seedlings, repotting, pinching plants, and checking for insects and diseases. These activities are not only mandatory in caring for plants but develop general skills as well.

Hand-eye coordination and fine motor skills become developed which can be employed in diverse situations. For example, mastering the delicate operation of transplanting seedlings improves manual dexterity so that such things as dialing a telephone, threading a needle, working with tools, or working on an assembly line becomes easier. Other general skills such as accuracy, quickness, remembering sequences, and performing satisfactory work are also developed. Needless to say, these skills are of paramount importance in obtaining and maintaining a job and in caring for oneself at home.

Theoretical Applications

The third specific area of the program deals with the theory of growing plants. Such topics as photosynthesis, respiration, cell parts, mitosis, and the effects that light, water, temperature, diseases and insects have on plants are learned. Such complex topics can be successfully taught to EMR and LD students using such techniques as diagramming, analogies, stories, worksheets, vocabulary exercises, reports, and extensive oral review. These subjects are taught because students not only need to learn how to do something but why they are doing something.

Theory teaches the rationale behind the every day operations so that a student is not simply performing a mindless task but uses the theoretical knowledge to reason out plant growing problems. In doing so, one is improving problem solving abilities which will allow students to reason out solutions to problems encountered outside the greenhouse. Theory also develops complexity in a child's thinking. Manual operations such as watering and transplanting foster skills in manipulating physical objects while theory fosters skills in manipulating concepts. Both skills are necessary if an adult is to successfully care for himself or herself.

Becoming Socially Competent

Another specific area that comprises the structure of the greenhouse program is development of good interpersonal relationship skills. By working in pairs or small groups, the student learns how to share and cooperate. At other times students that have already mastered a techniques will tutor another child that needs help. Doing this enforces the concepts of helping one another.

Continuous interaction with classmates, the teacher, and customers aids the students in becoming self-confident and adept at speaking and relating to other people. Continually practicing these skills in the greenhouse improves the ability of each student to coherently speak to and successfully deal with other people. These tools can then be used as the foundation for functional independence outside the classroom.

Boss for a Week

The last area of the program deals with the development of management skills: making decisions, planning, and implementing these plans. For example, by the time students reach the third year of the program, they have practically mastered the day-to-day activities in the greenhouse. They are then required to put this knowledge to work.

One student is selected to be the "planner" of the week and is responsible for designing a one week plan of activities dealing with the care of the plants. During that week, he/she acts as supervisor in making sure all operations are carried out and carried out correctly.

Another management activity involves letting each student grow a crop from start to finish. The crop can range in size from ten plants on up depending on students' experience and knowledge. Each person chooses one kind of plant out of a selected variety. If he/she has mastered the basics, she or he is in charge of total production: propagating, watering, fertilizing, detecting and controlling insects and diseases, repotting, pinching, selecting proper temperature and light conditions, etc. For those students that have not yet mastered a majority of the basics, the activity can be modified to fit their level of experience: simply make these students responsible for those operations that they have already mastered. These types of activities foster taking responsibility and initiative and hone such skills as solving problems and making plans, observations, and decisions.

Yet another management development exercise is one that has been mentioned earlier: allowing students to tutor other students. To be a good tutor involves being able to find out where the uncertainties lie, explain things, correct mistakes, and tell whether or not what has been explained has been learned. A modification of tutoring is supervising. Third and fourth year students can be put in charge of a group of classmates while the teacher is busy with another group. This works especially well when activities have to be done inside and outside the greenhouse simul-

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Plants Breed Success

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taneously. Tutoring and supervising serve to strengthen leadership abilities.

Rating Success

The coalition of these five areas is designed to produce an individual who has good hand-eye coordination, manual dexterity, can remember, and perform sequential operations, apply knowledge to different situations, think conceptually, relate well to other people, and make decisions and solve problems. A person who can do these things is equipped for the rigors of life.

How successful has the greenhouse program been in helping mentally handicapped students develop in these areas? That can be answered in terms of statistics. For the students who have already completed at least three out of the four years in the program, 50 percent have already held after school or summer jobs, such as helping local farmers plant and harvest crops, cutting and splitting timber for fuel, janitorial work, washing windows, and cleaning up local parks. This is a good indication of future prospects for these young adults. It shows that they have gained those skills necessary in obtaining and maintaining a job.

Out of the remaining 50 percent, there is another 20 percent that will undoubtedly be employed once they reach sixteen. What about student who have already graduated? Since the program is so young, there have only been six graduates. Two of them graduated two years ago and both are employed, one as a janitor and one as a postal clerk. The other four graduated last May. Out of those four, two had summer jobs but had not yet found a permanent position, although they were actively seeking one. The other two have chosen not to join the work force at this time. The success of the program pretty much speaks for itself. It shows that a vocational horticulture program is one way in which to help handicapped students become successful and independent adults.

THEME

Support Services for Handicapped Students

By Patrick F. Toole and Jean Eddowes

(Editor's Note: Dr. Toole is Executive Director and Mrs. Eddowes is Information Specialist with the Central Susquehanna Intermediate Unit, Box 213, Lewisburg, Pennsylvania 17837.)

The vocational agriculture teacher is expected to know a variety of fields and trades, to be aware of new research and technology, and to meet the needs of students with different abilities, experiences and career goals. Along with these demands, the vocational agriculture teacher is asked to meet the unique learning needs of handicapped students within the framework of the regular education program.

- assistance from specialized or paraprofessional staff,
- in-service opportunities for teachers,
- informational and curriculum resources, and
- self-teaching and other instructional devices for students.

Pennsylvania Model

In Pennsylvania, services are available through intermediate units — 29 regional education agencies serving school districts. Intermediate units offer special education programs, computer services, staff development in-service courses, instructional materials and curriculum support services, which one district, alone, could not provide as economically or effectively.

The Central Susquehanna Intermediate Unit, located in Montandon, serves 17 school districts, three area vocational-technical schools and several nonpublic schools in five central Pennsylvania counties. Its largely rural service region includes hundreds of farms and agribusinesses, and several of the schools it serves offer vocational agriculture programs.

While this article is written primarily from the intermediate unit's perspective, support services also may be available through local school districts, universities, state departments of education and statewide programs. Federal funds for vocational programs and for the handicapped may be available for some services. Teachers desiring more information may contact their state departments of education.

People Helping People

The aide who assists the physically handicapped student, the intinerant therapist, and the special education teacher are a major source of support for handicapped students and their vocational agriculture teachers. Both specialized and paraprofessional staff have important roles to play in meeting the needs of those with handicaps. For handicapped students who are receiving special education while being mainstreamed or integrated into regular vocational agriculture classes, the special education teacher is the closest source of help.

Most mainstreamed students in our region are educable mentally retarded, having below-average intellectual ability; or learning disabled, having difficulty with basic learning skills that limits their ability to reason, read, write, spell or do mathematical calculations. While they follow the same vocational agriculture curriculum as regular students, they often require support instruction in basic skills and help with concept mastery and problem solving. In some cases, it may be necessary to modify learning materials or use special instructional devices to meet their needs.

Instruction and Materials

The special education teacher can provide support by:

- reviewing and explaining materials covered in vocational agriculture classes,
- providing remedial instruction in reading and math skills necessary to complete assignments,
- reviewing students' class notes and written assignments,
- checking to see that students prepare for class daily,
- monitoring their progress through frequent contacts with vocational agriculture staff.

Special education teachers may adapt materials, such as recording a reading assignment for a student with a low reading level, or suggest effective instructional aproaches. They may make home visits to gain a better understanding of students' abilities, needs and vocational agriculture projects. The teacher or a special education vocational coordinator, may provide career information in addition to that provided in the regular classroom.

Cooperating Personnel

For this support to be effective, appropriate scheduling arrangements and close communication between the special education and vocational agriculture teacher are necessary. The special education teacher should have opportunities to become familiar with the vocational agriculture program, while the vocational agriculture teacher may need opportunities to learn more about different disabilities and teaching handicapped students. Time for cooperative planning also is important.

The nature of some handicapping conditions may make paraprofessional rather than specialized support appropriate. For a physically handicapped student, for example, an aide may make the difference between safe and hazardous learning conditions in a laboratory.

At one high school in our region, for example, a full-time aide provides individual support to a student with muscular dystrophy. Working under the teacher's supervision, the aide writes for the student, who has limited use of only one hand and is confined to a wheelchair, and assists in laboratory exercises. The student performs as many tasks as possible, turning to the aide to carry out activities he cannot do. With this support, and with program modifications by his teacher, he is able to participate in regular classes. Volunteers, such as foster grandparents, can be another source of paraprofessional help.

Under a new CSIU program this year, two professional support advisors are helping intermediate unit teachers improve instruction for special education students. Such consultative assistance for regular education teachers serving handicapped students has potential as a support service.

Awareness Approaches

A blindfolded teacher uses a white cane to take a "trust walk" through an obstacle course, experiencing what it is like to be blind. A regular education student attempts to maneuver a wheelchair through a crowded room and understands the barriers confronted by the physically handicapped.

Simulations such as these are a key feature of disability awareness programs; one form of in-service training offered by intermediate unit special education staff in our region. The programs enable regular education teachers and students to experience the problems and frustrations of the disabled and offer suggestions for teaching special needs students.

Participants in a session on mental retardation, for example, are asked to place a card on their foreheads and write the numbers from 1 to 10 on it. The numbers are generally reversed, scribbled or written on top of one another, revealing that, despite one's best efforts, a handicapping condition can hinder performance. A second activity requires participants to listen to 15 rapid, oral directions, then recall and respond to them. The difficulty par-

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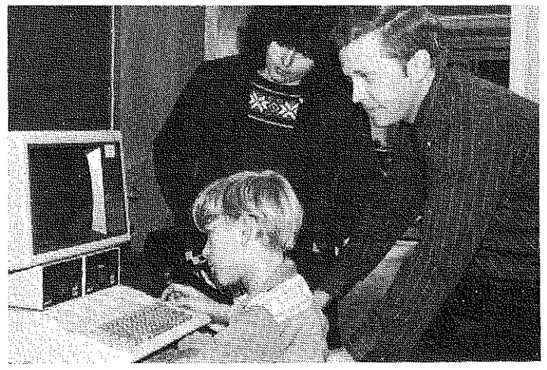
The special education teacher provides support services, which may include home visits, to mainstreamed vocational agriculture students and serves as a resource person for teachers.



A special education teacher and agriculture education teacher developed a proposal for funds to support remedial computer instruction for handicapped students in a vocational agriculture program.

Support Services For Handicapped Students

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ticipants experience points up the need for care in providing directions to the mentally retarded. Participants learn that giving directions one at a time, slowly, and working with a mentally retarded student as he or she follows a direction is likely to be an effective approach.

In addition to the awareness sessions, special education staff offer in-service training on special materials, devices and techniques for teaching disabled students. Other training focuses on organizing and managing classrooms with mainstreamed students.

A popular "Kids on the Block" program uses child-size puppets to prepare students, teachers and parents for the entry of special needs students into regular education classes. The presentations are available on request and can be adapted to the needs of specific audiences — teachers, administrators, parents or students.

A course available through the CSIU's staff development program offers another twist to in-service training. Called "Agriculture in the Classroom," the 15-hour course, approved for Pennsylvania Department of Education in-service credit, offers regular and special education teachers' suggestions and resources for incorporating agriculture education in their programs. The course can be useful to special class teachers helping mainstreamed students in vocational agriculture programs. Other in-service opportunities for teachers of handicapped students have been available through the Pennsylvania Department of Education and state and national associations.

Films, filmstrips and videotapes to increase awareness and assist teachers serving disabled students are available on loan from a resource collection maintained by SCIU special education staff. A professional library at the intermediate unit includes publications on mainstreaming in vocational education, classroom management tips, mental retardation, learning disabilities, physical handicaps and other handicapping conditions.

Statewide programs, or state and national organizations, may be additional sources of support. In Pennsylvania, the Pennsylvania Resources and Information Center for Special Education (PRISE) provides information searches in response to questions regarding special education, and three Special Education Regional Resource Centers offer in-service programs, audio-visual and other instructional materials, and professional publications for those serving students with special needs.

Technology

Technology can be a valuable source of support for both handicapped students and their vocational agriculture teachers. Technological devices can be used to help meet the special learning needs of the handicapped. An optacon, for example, enables the blind or visually impaired to "see through their fingers" by converting printed words into tactual sensations.

Computer programs allow students to work independently at their own pace and can provide remedial instruction. The mentally retarded or learning disabled student who may become frustrated in a regular classroom where individual instruction is limited may find the individualized, self-teaching aspects of computer-assisted instruction highly motivational. Reading information on a monitor is often more attractive to a poor reader than the conventional textbook, and the computer has the additional advantage of requiring student response and providing immediate feedback and reinforcement.

A remedial laboratory where handicapped students in vocational agriculture can use the computer equipment for individual study was established at a CSIU-region high school three years ago. Federal vocational funds for the equipment, which is used solely by disabled students, were obtained through a proposal cooperatively developed by the special education teacher, vocational agriculture teacher and district staff. Instructional materials costs were assumed by the local district.

Because students can use the computer during their free periods as well as during class periods, it extends the instructional time available to them. Since computer programs can stimulate situations encountered in agribusiness and agricultural enterprises, they enable students to develop decision making and problem solving skills which are often difficult for the mentally handicapped who are working at their own pace. The equipment is proving to be a wise investment of funds, according to the teachers, as it can be upgraded to meet the changing needs of students and changes in the field by purchasing or modifying software. Tutorial computer disks, such as the "Penn State Outreach Program" are available at colleges and universities across the country.

Some technological devices are designed to enable students to complete vocational tasks while watching and listening to an audio-visual presentation. From a microcomputer program, one can learn skills to produce partially assembled or finished products varying in complexity. Other new curriculum packages and training simulators teach retarded students to use tools or perform tasks useful in various skill areas. The concept of itinerant programmed learning vans warrants investigation, as such vehicles could enable students to receive instruction through various modalities (seeing a slide presentation and listening to a cassette tape, for example), while completing a task with support from an itinerant instructor.

Curriculum Resources

While several curriculum resources may be appropriate for both handicapped and regular education students, others may need to be developed or adapted for disabled students. For example, task sheets, providing step-by-step instructions for completing an agricultural-related task such as developing a feed ration, have been prepared by the Pennsylvania Department of Education for students with learning problems.

Taped materials or materials written on different reading levels may be helpful for those with limited reading skills. Career education materials — information packets written at the third, fifth and eighth grade levels, audio-visual materials and workbooks on careers in agribusiness and natural resources — are available from the CSIU.

Also available are curriculum materials developed and collected through a regional "Agriculture in the Classroom" project co-sponsored by the intermediate unit and the Pennsylvania State University's Department of Agriculture and Extension Education. These materials — lesson plans, activities sheets, resource lists, a field trip guide and related publications — are designed for use in regular education classes, K-8. They can be used with handicapped students in vocational agriculture classes as well. Curriculum resources also may be available from colleges and universities.

More Can Be Done

While several support services are available, vocational agriculture teachers in our region tell us that more can be done. Needs for more individualized assistance for the physically handicapped, for information on audio-visual materials and other assistive devices for support instruction, for more time for interaction with those who can help, and for scheduling arrangements that facilitate remedial instruction were expressed.

Working together, those who can provide support services and the teachers who need them can address these issues. Vocational agriculture instructors have long looked to partnerships to improve learning opportunities for their students, and service partnerships are a logical extension of this outreach. With its emphasis on learning by doing, its use of scientific innovation and technology and its appreciation of the needs and interests of individual students, vocational agriculture seems uniquely suited to help handicapped students succeed. Given the critical importance of agriculture to our region, our state and our nation, we are firmly committed to helping teachers meet this challenge.

THEME

Adapting Equipment for the Handicapped

By Ken Bruwelheide

(Editor's Note: Dr. Bruwelheide is an Associate Professor of Agricultural and Industrial Education at Montana State University, Bozeman, Montana 59717.)

Teachers of vocational agriculture who attempt to provide educational experiences for handicapped students are faced with an interesting challenge. The mandates of Public Law 94-142 place the burden of providing equal educational opportunity with the classroom teacher.

Legislation; however, does not spell out specifically how the vocational agriculture teacher can make these accommodations in the laboratory/shop setting on a daily basis. When first considered, the prospect of safely accommodating the physically handicapped student into an agricultural mechanics laboratory/shop setting seems like a hopeless endeavor. This perceived hopelessness may often be brought on by the teacher's lack of formal training in the area of special needs education. Further frustration occurs when teachers do not have an active role in preparing the student's IEP (Individualized Education Program) and the fact that while federal mandate says accommodation will occur each student's needs are individual.

It must be remembered that when accommodation of the physically handicapped student into a vocational agriculture program is successful, educational and career building experiences are possible. Working with the handicapped requires extra time and effort but the rewards for all concerned are great.

Basic Information

When vocational education teachers in Montana were surveyed concerning the accommodation of handicapped students, several important facts were revealed. The major findings were:

1. Most physically handicapped students have not had previous mechanics/shop experience, simply because of their handicapping condition.

2. While many vocational agriculture teachers in our state are challenged by the handicapped student, only about one-third have had any preparation in special education.

3. Teachers are reluctant to attempt accommodation due to lack of professional support as well as practical assistance in meeting handicapped student needs.

In order to assist the vocational classroom teacher, a practical, developmental approach was used to develop classroom methodology, guidelines and adaptive apparatus necessary for serving this special population. Educational experiences were developed around very basic mechanics skills, tools and equipment. Tools representative of basic agricultural mechanics skills were selected: measuring tools, hand tools, portable power tools and stationary power equipment. Safety and proper use information was developed for each item.

Next to be determined was how physically handicapped individuals could perform in an actual agricultural mechanics laboratory instructional situation, a group of physically handicapped individuals interested in developing mechanics skills was used to develop and test adaptive apparatus. The adaptations were developed to permit the physically handicapped to safely use shop tools and equipment.

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Adapting Equipment for the Handicapped

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The development and testing program utilized individuals with a broad range of physical handicaps including amputees, cerebral palsy victims, para- and quadraplegics and vision impairments, hearing impaired, and partially paralyzed individuals. The value of using handicapped individuals is that nonhandicapped people cannot visualize the personal experience of those who live and cope daily with handicapping conditions. A basic precept of the Education for All Handicapped Children Act is that educational experiences be as regular or normal as possible. Therefore, a first approach should be to have handicapped students work with unaltered tools and equipment in the same manner as a non-handicapped student.

Vocational agriculture teachers will need to set up a mobility testing program for each physically handicapped student. The test should be centered around tools and equipment used in the agricultural education program. The special education staff in the school can assist in this test. When tool-use difficulty is experienced by the handicapped, the situation should be carefully analyzed. At this point user input from the handicapped student is extremely valuable combined with the experience and expertise of the vocational agriculture instructor which leads to problem solving. Assistive apparatus, when developed, must meet the safety and proper use requirements set by the instructor and the mobility needs of the individual student.

Tool and Equipment Testing

Testing data reveal that each physically handicapped individual differs in the type and severity of disability. However, there is a high degree of similarity of problems encountered in the use of tools and equipment when these individuals are viewed collectively. While some people are physically strong, each experienced difficulty with fine motor control, dexterity, reach and body position when using tools and equipment. It was noted that despite varying degrees of initial difficulty, test group members felt that all but a few tools could be used correctly and safely with practice or tool modification.

As in any new skill encounter, the physically handicapped test group lacked knowledge of the tools and equipment and their uses. This situation will also arise for disabled students in the real agricultural mechanics laboratory setting. That the test group students could, with few exeptions, use the tools and equipment after basic use and safety instruction is a point to be remembered by skeptical teachers. An additional point to be remembered is that handicapped students must be appropriately placed in the school program through the use of the IEP (Individualized Education Program) mechanism with planning input from all concerned school personnel.

Building Equipment Aids

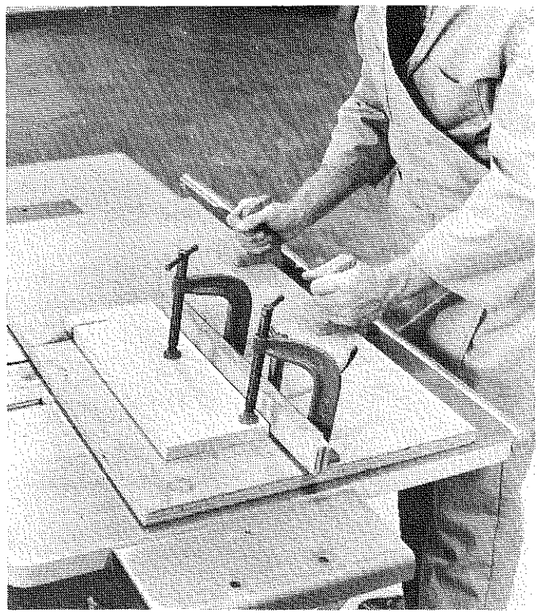
When it became necessary to construct aids to permit the physically handicapped individual to use equipment several major factors were kept in mind. The items should:

1. be economical to construct
2. be made from materials available anywhere
3. be constructed easily in a short period of time, and
4. not impede the use of tools or equipment by non-handicapped individuals.

In constructing all aids, common items such as C-clamps, nuts and bolts, steel bar stock, solid hardwood, and plywood, were used. Consequently most items can be developed at a very low cost. Except for a specialized workbench and a wheelchair stand, the average cost per item is about $12.00. To satisfy immediate student needs, many items were made during an afternoon or overnight.

Each piece of adaptive equipment should be developed with safety as a first consideration. There is also a concern about the manufacturer's product liability protection when altering equipment. In the opinion of legal counsel, the intention is to make tools and equipment safer to use by all individuals, based on professional background and teaching experience. In addition, Congress mandates such action for accommodating the handicapped.

Each handicapping condition is unique and must be considered individually. Vocational agriculture instructors should understand that while certain equipment and tool modifications work for specific handicaps they may not solve use problems for everyone. The overwhelming observation during all testing and development sessions was that the physically handicapped individuals continually searched for ways to use their positive abilities. This compensatory motivation greatly affects student performance, a point to be remembered by vocational agriculture instructors.



Power equipment may need to be adapted to safely accommodate the handicapped student.

THEME

Attitudes and the Handicapped

By James R. Collins and Margi A. Mohr

(Editor's Note: Dr. Collins is an Assistant Professor in the Agricultural Department at Southwest Texas State University, San Marcos, Texas 78666; and Ms. Mohr is CVAE Horticulture Instructor at Jack C. Hays High School, Buda, Texas 78610.)

Education of the handicapped has come a long way in recent years. Greater emphasis on individual rights has brought about many changes in the educational opportunities for the handicapped. Changes in philosophy have brought about legislation which considers the rights of the handicapped to an education to be the same as those of other individuals. These changes have seen the handicapped taken from being locked away in institutions to being mainstreamed into the regular classrooms.

In years gone by, it was felt with advancements in the medical profession we would eventually be able to prevent or cure most of the conditions we know as handicaps. While medical science has made great strides in this area, we have not yet reached the point where handicaps are a thing of the past. Though it may seem illogical to say, advancements in medicine are probably accounting for more handicapped students in our schools than in the past. The reason for this is that many of the handicapped students we find in our schools today, had they been born fifty years ago, might never have survived to attend school. With increased numbers of handicapped students present in our schools, for whatever reasons, the likelihood that the average teacher will encounter handicapped students in their classes has also increased.

Attitudes Are Important

Handicaps are not exclusively a personal characteristic. They are the product of an individual who has a difference and an interaction with a certain environment. Since human development does not take place in a vacuum, we must consider the effect of the environment on the handicapped student. A handicap exists when a student lacks the necessary ability to perform at the levels expected by those around them. Whether or not the differences that the students possess are really important depends on environmental or societal expectations. The academic environment is one area in which handicaps, especially mental, tend to be very noticeable. Many times within this environment, social punishment for having a disability can be more of a handicap than the actual disability that the student has.

Since the attitudes of those around the handicapped student play a major role in influencing their development, they should be an area of concern. Perhaps the key individual associated with these attitudes is the teacher. The teacher must look at attitudes toward the handicapped from two viewpoints: 1) the teacher's own personal attitudes toward the handicapped, and 2) the attitudes of the other students in the class toward the handicapped. Negative attitudes from other students and/or the teacher may tend to send a handicapped student's development in a negative direction. Whether or not the handicapped student has a positive atmosphere for learning may well depend upon the teacher's willingness to intervene in situations which could present a problem to handicapped students.

Are They Really Out There?

When considering the plight of handicapped students in our regular vocational agriculture programs there are two basic questions which must be addressed. The first, simply stated, would be "Are there handicapped students present in our regular programs?". This question would probably be modified by many to ask if there are enough handicap-

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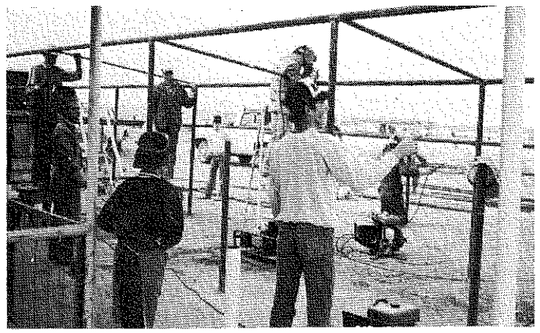
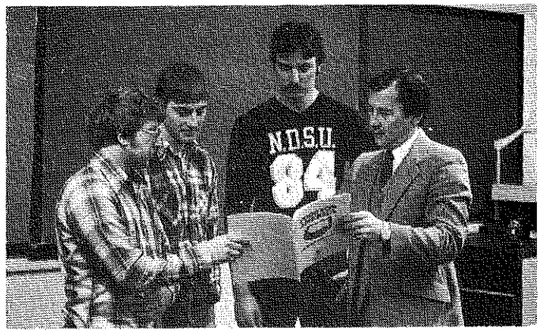


Teachers should encourage a cooperative attitude among all students. (Photograph courtesy of Mike Gaines, New Mexico.)



The attitude of the teacher must also be properly developed. (Photograph courtesy of Vern Luft, North Dakota State Univesity.)

Attitudes and the Handicapped

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ped students in our programs to justify all the concern. To the teacher who has not had handicapped students in his/her program, or possibly only an occasional one, it may seem that our concerns are for a very small minority. Teachers who have had little or no contact with handicapped students should not consider themselves exempt from their presence. By observing the frequency of these students in other programs, they should be able to draw conclusions with regard to their chances for having handicapped students in their program. This should help them to realize the importance of knowing how to meet the needs of these students.

A second question which should be considered might be "What are the attitudes toward handicapped students?" As was previously stated, when a teacher attempts to evaluate the attitudes toward the handicapped present in his/her own program, he/she should consider not only the attitudes of other students, but should take an honest look at his/her own attitude. The attitudes of the students will most likely be influenced to a large extent by the attitude of the teacher.

In a recent survey, conducted by the authors, of a group of Texas vocational agriculture programs, it was found that handicapped students are a reality in our regular programs. Of the programs surveyed, over 75 percent had students which could be classified as either mentally or physically handicapped. With regard to the attitudes of the teachers toward having handicapped students in their regular programs, it was found that 20 percent of the teachers were clearly in favor of having them, while 72.5 percent indicated mixed feelings on the subject. One area in which the attitudes of the teachers were more definite was with safety. The responses of the teachers indicated 70 percent felt that safety was a bigger problem with handicapped students.

Summary

The presence of handicapped students in our regular programs is becoming very common. One crucial area, which must be considered when dealing with these students, is the attitudes that are present toward handicapped students. If the handicapped students encounter attitudes that place them in the role of second-class citizens, it should not come as a surprise when they have difficulty learning. In the case of negative attitudes, change may not come easy. The teacher has a vital role in bringing about this change. The degree to which the teacher acknowledges these problems and accepts the challenge of making necessary changes, may well determine to what extent the handicapped student is able to succeed in gaining the knowledge and skills that vocational agriculture has to offer.

TEACHING TIP

A Stress Plot for Crops

Stress! We all see it in our lives; how it affects us and people around us. But can stress affect our crops? Yes. But do our students understand the kinds of stress experienced by crops and the resulting affects on crops? To help students become aware of this factor in crop production, Melanie Parks, Ohio State University student teacher at Wauseon High School, Ohio, had her students develop a "stress plot" for corn.

The plot, which can be of any size, is in the shape of a wagon wheel. The spokes of the wheel serve as the rows of corn. Obviously, the plant population near the center of the wheel is more dense than the plant population at the rim of the wheel. This change in population is due to the row widths which decrease toward the center of the wheel, and increase toward the rim of the wheel.

Melanie expanded the use of the stress plot by planting different varieties of corn. At harvest time, yield checks can be made on each variety as well as on areas of varying distances from the center of the wheel.

Miss Parks suggests that student committees be formed to develop the experimental stress plot to provide for optimum student involvement. For example, committees can be assigned various varieties to plant and/or certain rows to plant and cultivate.

THEME

The Land Laboratory: Success for the Special Needs Student

By Michael Tyrrell

(Editor's Note: Mr. Tyrrell is an Instructor of Vocational Agriculture at Two Rivers Agri-Business Center, Waterloo, Nebraska 68069.)

Omaha, Nebraska is no newcomer to agriculture. The city has expanded and prospered as a result of its agricultural base. It is estimated that the agribusiness industry generates 4.2 billion dollars annually to the Omaha economy and that one out of every three Omahans is employed in an agribusiness or related occupation. It is because of this interest in the industry, the stress on creating an educationally superior setting and the cooperation of the community that has made possible the unique Omaha Two Rivers Agribusiness Center.

The Agribusiness Center

The educational philosophy of the Omaha Public Schools is one of coordination and integration. Of the 41,000 students served in the Omaha School District 8,000 are identified as special needs students with varying handicaps and they are all served in the public schools' facilities. The Two Rivers Agribusiness Center provides an educational alternative to the traditional school setting by providing academic and agribusisness experiences for interested senior high school students.

The program was developed on the concept of total education for all students. Incorporated are an academic core offering designed to meet graduation requirements and electives in agribusiness such as: mechanics, horticulture, agricultural production, natural resources and sales and service.

The staff philosophy sets the educational tone of the program. It is felt by the center staff that agricultural education must be approached from all perspectives: curriculum structure, materials, lab experiences and extracurricular activities with a constant view towards career awareness and career opportunities. With all students in mind, we are seeking to develop the total child, instilling in them responsibility, maturity, appropriate human relations skills and an understanding that learning does not end with graduation but is a lifelong process.

Understanding the restraints of special needs students, adaptations to the program have been incorporated into all aspects of the educational format. Materials have been adapted and alternate supplemental materials supplied when needed. All written materials are available on cassette tapes and large print and braille books are available for the visually impaired. The district has the facilities and the personnel to assist in the adaptation of equipment to meet the needs of physically handicapped students.

The Land Laboratory

The 167 acre land laboratory creates a unique education setting that allows the special needs students to interact with their peers and the facility in a variety of ways. Because of the small pupil-teacher ratio, direct intervention techniques are possible. Such activities as peer tutoring and shadowing are workable because of the facility and the program. The shadow program has opened several doors for students with limited agricultural experience. Letting students spend a day in a career area of their choice gives them their first taste of agribusiness opportunities.

As secondary students, career awareness and career opportunities are primary concerns for both regular and special education students. The CART program (Career

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A school land laboratory provides unique learning opportunities. (Photograph courtesy of the National FFA Center.)

Land laboratories provide for proper supervision during skill development. (Photograph courtesy of Joliet Junior College, Joliet, Illinois.)

The Land Laboratory: Success for the Special Needs Student

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Assessment, Readiness and Training) addresses these needs for special education students. Using a variety of assessment tools, the student's interests, aptitudes and career awareness for seeking and keeping a job are assessed. Activities are available to strengthen each of these areas through classroom projects.

After the completion of this segment of the career awareness project, students are eligible for a work experience program. Jobs are selected using information acquired through the assessments and as a result of the student's job experience and, if the activity is completed in a satisfactory manner, credits toward graduation are granted.

One of the challenges to the center staff is encouraging the natural curiosity of the special needs student. Students must learn from the teachers and textbooks in traditional ways, but they also need the experience of discovering for themselves. These educational experiences are enhanced by the practical experiences in the land laboratory.

The special needs students are able to become actively involved in field experiences in livestock production, crop production and natural resources.

The livestock production area provides students opportunities to gain firsthand experiences in livestock production cycles. Students' Supervised Occupational Experience Program enterprises include cooperative endeavors in feeder pigs, cattle and sheep. Cooperatives are designed so all students have an opportunity to participate. They involve both livestock production and the cooperative method of doing business. Involving the special needs students in cooperatives provides them with a variety of learning experiences including: responsibilities of officers and members, budgeting, bookkeeping, purchasing, marketing and sales, plus the various aspects of a livestock operation.

The crop and soil segment of the agricultural curriculum adds depth to the agribusiness program. One hundred and thirty acres of cropland including corn, soybeans, wheat, oats and alfalfa provide field studies for students in the total crop production cycle. The center is equipped with a complete line of equipment for educational purposes. Students are instructed, trained, and certified on safe and proper equipment operation. During the 1985 crop year, a test plot program will be initiated at the center.

Utilizing corn test plots is one way that the special needs student will gain experience in crop production. The project will involve the total staff and all students. The agribusiness staff will be responsible for the production aspects including herbicides, fertilizers, varieties, and population; the English department, all correspondence and news articles; and the math and science area, data collection and all calculations.

Natural resources is an area of considerable interest within the student population. The land laboratory is used extensively for instruction in natural resources. Student activities have included development of a nature trail, wildlife observation blinds, and construction of wood duck nesting boxes. Regardless of the student's ability, the land laboratory and the use of the cooperative method enable students to learn management techniques, attain self-fulfillment, and develop competitive skills.

Personal Development

A vital component to the Agribusiness Center and to the school district's philosophy is the Future Farmers of America. Special needs students become active participants in the team and chapter efforts. They grow in the areas of leadership, written and oral communication and civic responsibilities.

At the Two Rivers Agribusiness Center, we want students to be excited about all they discover. Memorization of facts is not enough; we want our students to learn how to acquire information and develop reasoning abilities based on practical experiences. We feel that the Two Rivers Agribusiness Center provides the special needs student the opportunity to face new challenges and to develop feelings of ownership and pride in their accomplishments and themselves.

THEME

Preparing Agricultural Teachers of the Handicapped

BY JOHN R. CRUNKILTON

(Editor's Note: Dr. Crunkilton is Professor and Program Area Leader of Agricultural Education at Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.)

The basis for the points to be made in this article will be from what has been learned from an extensive review of the literature, on-site observations and interviews with vocational teachers who have taught the handicapped, and personal interviews with handicapped students. From 1978-80, Virginia Tech was awarded a two year project from the Bureau of Education for the Handicapped (BEH) to study the area of teacher preparation relating to the handicapped. The overall goal of this project was to facilitate the teaching/learning process for the mildly handicapped student in vocational and manpower education.

While the nature of this project took an across-the-board approach in vocational education, the conclusions drawn have implications for agricultural education. This article focuses around the seven major areas of: curriculum content, instructional process, student evaluation, record of student progress, behavior management, sources of supportive assistance, and facilities. Furthermore, implications for preparing teachers of agriculture to work with the handicapped will be identified and these implications will be based on what I observed, and was told during my on-site visits.

Curriculum Content

A cursory review of the curricula in the departments visited indicated no difference between the content that is usually taught in regular classes with the content one might find in a class specifically for the handicapped or in classes where the handicapped were mainstreamed. But upon a more critical analysis, the content was divided into smaller units of instruction, shorter time periods, and each unit was mastered by the student before progressing to the next level of competency required.

Another observation made at this time was the relationship of the curriculum to the handicapping condition of the student. In some cases, the content was modified due to the specific handicapping condition of the student and what that teacher perceived as a realistic vocational career for that student. Furthermore, a strong emphasis was found to be placed on developing desirable social behavior in students.

Teacher education programs in agriculture require preservice students to observe the handicapped in a classroom/laboratory setting. This needs to occur before student teaching and during student teaching. Furthermore, undergraduates must fully understand the different handicapping conditions and what limitations these conditions place on a student's ability as they relate to specific curriculum content. When this awareness is obtained, undergraduates will be better able to select and arrange the instructional content appropriate with the career aspirations and unique abilities of each student.

Instructional Process

The statement could be made that good teaching is practicing those things that we as teacher educators believe should be followed, regardless of the students being taught. This holds true to a great extent with the handicapped. However, some special points need to be highlighted and understood by our teachers. During observation visits as a part of the project, effective teachers of the handicapped were using small group instruction, peer tutoring, learning centers or other individualized approaches. These teachers were also up-to-date on the latest instructional materials available from commercial sources and they had secured many of these materials for use in the classroom and laboratory. Their classrooms were colorful, bright and cheery. Chalkboards and bulletin boards were full of information that related to instruction under way. Charts and handouts were readily available to assist the student's progress from one point in the curriculum to the next.

Agricultural education preteachers should be required to

(Continued on Page 20)

Undergraduate agricultural education students must understand the limitations handicapping conditions impose on students. (Photograph courtesy of Vern Luft, North Dakota State University.)

Preparing Agricultural Teachers Of the Handicapped

(Continued from Page 19)

observe teachers of handicapped students, conduct case studies of the handicapped, act as teacher's aides in a class of handicapped students, and if appropriate, actually teach a lesson to the handicapped under the supervision of an experienced special education teacher. This implies that the methods courses would need to assure that all future teachers were competent in planning and directing small group learning situations, in utilizing the assistance of handicapped students for peer tutoring, and in using non-traditional classroom structure, such as individualized learning centers.

Student Evaluation

Teacher educators have traditionally emphasized to undergraduates the evaluation of their students through formal and informal approaches. Furthermore, we may have stressed the need to evaluate on a regular basis of once per week or at the completion of an instructional unit. After many on-site visits, the effective teachers were stressing what would be called the informal approaches to evaluation. They were using projects, oral reports, demonstration of skills and other types of individual student activities as a means of evaluation. Individual evaluation of each handicapped student was made more often, and in most cases every day. The other comment made by these teachers was that each student was evaluated in light of an earlier assessment made of that student's achievement and not in comparison to the group or the progress made by that group.

More emphasis will need to be placed on developing the ability of our graduates to evaluate the handicapped through informal evaluation measures. There is also a need to break the traditional approach that a teacher should evaluate the class as a whole and promote more individualized testing. Another implication is that future teachers need to select the appropriate method for evaluation, taking into account the student's handicap.

The informal evaluation of students is an important skill for student teachers to develop. (Photograph courtesy of Lindsey Keene, Southwest Lauderdale Attendance Center, Meridian, Mississippi.)

Records of Student Progress

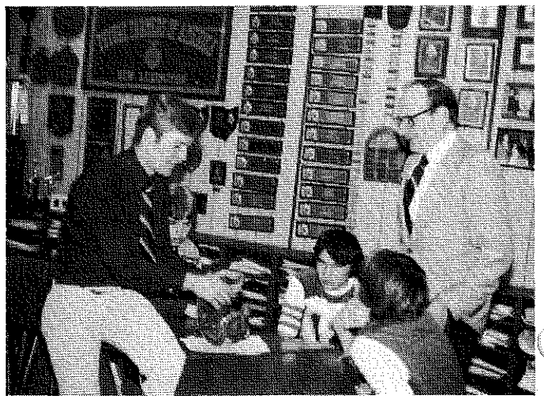
The typical record book found in agricultural classes will not be sufficient for recording the progress made by a handicapped student. The teachers observed not only had the traditional record books, but they were also supplementing their recordkeeping with appropriate charts, graphs, individual projects, audio or video tapes, and subjective assessment forms. Many of the teachers had an individual file folder and/or a locker for each student and, at any given time, the teacher could tell at a glance exactly how far the student had progressed. The ability to assess the level of competence at any given time was critical, since students were being evaluated on progress since their last assessment and not on the other students' progress.

Our future agricultural teachers must have the ability to develop and use individual assessment forms for measuring the progress of each individual. This implies that the teacher be able to develop a recordkeeping system that speaks to the unique needs of that handicapped student.

Behavior Management

The first thing that may come to your mind is behavior management of the students. However, the most evident behavior observed was that of the teacher. First, they were extremely well organized. Second, they did very little talking and when they did talk, they spoke in clear, concise terms. They wasted no words. Third, they were tough. By this I mean, they demanded that the students do their best, that students must repeat learning activities not completed correctly or not completed to the degree that the teacher thought the student could master. And fourth, that the handicapped students not be pampered. Furthermore, these teachers had a sense of humor and even used the students' handicapping conditions as a source of light joking. It appeared the best behavior management scheme, when a problem developed, was through the loss of some privilege. If the student did not do something that was expected, then the student would not be allowed to do something else.

Our graduates must have a thorough understanding of sound principles and theories of teaching/learning and be able to implement these while teaching in a humanistic manner. This includes such abilities as using positive reinforcement, involving students in learning activities, planning thoroughly for each class, problem solving, and showing empathy for each student.



Training student teachers to give demonstrations is an important task. (Photograph courtesy of Gilbert Guiler, The Ohio State University.)

Supportive Assistance

Teachers of the handicapped who were effective use all resources that were available to them. They were not too proud to seek out help from colleagues, special education teachers, guidance counselors, or agencies that exist within the community. In one school, the special education teacher worked up a learning activity for the vocational teacher emphasizing the vocabulary of a topic under discussion in the vocational class. Study guides and handouts were reviewed by specialists before they were used in the classroom or laboratory. These teachers were aware of what assistance could be secured at school and when appropriate and needed; they did not hesitate to seek out assistance of others.

Our graduates need to be familiar with the federal, state, and local agencies that can lend assistance when working with the handicapped. Furthermore, teachers need to know how to use these agencies effectively and who can be called upon within the local school system for assistance in working with the handicapped.

Facilities

This segment of our educational system is probably one of the biggest concerns of agricultural teachers when faced with teaching a handicapped child. However, for the schools and teachers that I visited, this did not appear to be a concern. The teachers took a very practical approach when dealing with tools, equipment, or facilities.

The teachers studied the student and what tools or equipment were needed for a particular instructional unit. When this review was completed, three alternatives seemed to surface: (1) the student could use the equipment or tool without any modification of the item; or (2) the student could not operate the equipment or tool or could not operate it according to established safety rules; or (3) with modification of the tool or equipment, the student could use the item safely and correctly. Some examples of how a simple solution may solve what appears to be a major problem were: a specially designed stick to operate control levels that were too high or out of reach; lowering the height of one work bench in the laboratory; or providing a step stool for certain equipment.

Teachers must be able to assess the ability of each student and determine what limitations might exist for that student. Observations of effective teachers will tend to illustrate to novice teachers or undergraduates that what may appear as a barrier to learning can indeed be overcome with a little ingenuity, creative thinking, or application of common sense.

Conclusion

Throughout this article, characteristics of the teachers who were identified as being effective and what they were doing to make them effective were highlighted. But what do the students say makes a good teacher? In our interviews with the students, we asked "when you are having a problem understanding or learning something, what kind of things does your teacher do to help you?" Here are what the students said.

He gave me step-by-step directions
Let's keep trying
Showed me examples
Explained, then praised me
Role played
Made each task simple
Demonstrated, then let me practice
Repeats things for me
Writes on the chalkboard
Gave us notes to take home
Works with us as a group
Lets me think about instructions before I do it
Tries different things
Talks to everyone individually
Answers questions

Perhaps the last implication is that we should never cease to listen to our students when efforts are underway to improve the program. Each answer given by a student in this study represents a pedagogical skill that agricultural teachers should possess.

References

Crunkilton, J.R., Poplin, P., and McGough, R. (1979) Characteristics of teachers who have successfully worked with the handicapped, DHEW Grant No. G007801418, Project No. 45/AH90140, Blacksburg, VA: College of Education, Division of Vocational and Technical Education, Virginia Polytechnic Institute and State University.

Tell Me How To Serve Them: Teaching the handicapped in vocational education programs, Modules 1-15, (1982) DHEW Grant No. G007801418, Project No. 45/AH90140, Blacksburg, VA: College of Education, Division of Vocational and Technical Education, Virginia Polytechnic Institute and State University.

Photographs Needed

The Agricultural Education Magazine needs quality photographs depicting the activities of agricultural educators, their students and their programs.

Clear, well composed 5 x 7 black and white photographs should be sent to Roger D. Roediger, Picture Editor, Curriculum Materials Service, 254 Adm. Bldg., 2120 Fyffe Road, Ohio State University, Columbus, Ohio 43210.

A complete explanation should be attached to each photograph. Photographs are not returned unless specifically requested.

ARTICLE

1985-86 Report . . .

Assistantships and Fellowships In Agricultural Education

The 1985-86 survey by the Publications Committee of the American Association of Teacher Education in Agriculture of assistantships and fellowships in agricultural education reflects the reporting of 20 institutions. The findings are published to help prospective graduate students select institutions for study and obtain financial assistance.

By A.P. Bell

(Editor's Note: Dr. Bell is Head of the Department of Agricultural Education at North Carolina A & T State University, Greensboro, North Carolina 27411.)

Key to Understanding

The information is provided in the following order: Nature of assistantships (number available); number of months available during the year; beginning month of employment; amount of work expected; monthly remuneration and other considerations, such as remission of fees; whether aid is for master's, advanced graduate program or doctoral students; source of funds; the 1985 deadline for application; and the person to be contacted. Slight variations in this pattern are due to the nature of the data provided by reporting institutions.

University of Arizona

Research Assistantships (2); 9 or 12 months; June or August; one-half time, 20 hours/week; $600 per month; out-of-state tuition waived; master's; department budget; March 1 or 6 months prior to enrollment; Floyd G. McCormick, Department of Agricultural Education, The University of Arizona, Tucson, Arizona 85721.

Clemson University

Teaching Assistantship (1); 12 months; May 15; one-half time; $375 per month; master's; April 1; Dr. John H. Rodgers, Head, Agricultural Education Department, P&AS Building, Clemson University, Clemson, South Carolina 29631.

Assistantship (1); 9 months; August 15; one-third time, $250 per month and reduced fees; July 1; contact same as above.

Cornell University

Teaching Assistantship/Internship (1); 12 months; June or September; 15 hours/week; $7,272 annually, $278.92 bi-weekly; waiver of tuition and fees; doctoral; State funding; April 15; William E. Drake, 204 Stone Hall, Cornell University, Ithaca, New York 14853, telephone (607) 256-2197.

Research Assistantships (2); 9 or 12 months, $7,272 for 12 months ($278.92 bi-weekly); waiver of tuition and fees; master's and doctoral; Hatch Act Research Funds; April 15; contact same as above.

University of Florida

Research Assistantships (3-5); 9-12 months; August; 14-20 hours/week; out-of-state fees waived; master's; varies depending upon position; April 1; C.E. Beeman, Department of Agricultural and Extension Education, 305 Rolfs Hall, University of Florida, Gainsville, Florida 32611.

University of Idaho

Research Assistantship (1); 12 months; July 1 or later; 20 hours/week; $600 per month; out-of-state fees waived; master's or doctoral; Agricultural Experiment Station; April 15; John W. Slocombe, Department of Agricultural and Extension Education, 225 Morrill Hall, University of Idaho, Moscow, Idaho 83843, telephone (208) 885-6358.

Southern Illinois University

Teaching Assistantships (4); 12 months; Summer or Fall; 20 hours/week; $570-600 per month; tuition waiver; April 1; Dr. James Legacy, Department of Agricultural Education and Mechanization, Southern Illinois University, Carbondale, Illinois 62901.

Teaching Assistantship (1); 9-12 months; Summer or Fall; 20 hours/week; $570-600 per month; tuition waiver; April 1, contact same as above.

Microcomputer Lab Assistantships (2); 9 months; Fall; 20 hours/week; $570-600 per month; tuition waiver; April 1; contact same as above.

Iowa State University

Research Assistantships (4); 12 months; July or September; one-half time, 20 hours/week; $625 per month; fee reduction; master's or doctoral; Agricultural Experiment Station; March 1; Dr. David L. Williams, Head, Department of Agricultural Education, Iowa State University, Ames, Iowa 50011.

Fellowships (2); 12 months; September; 20 hours/week; $625 per month; full fees paid; master's or doctoral; March 1; USOE for Minorities and Women; contact same as above.

Kansas State University

Teaching Assistantship (1); 9 months; August 26; 16 hours/week; $564 per month; out-of-state fees waived, in-state fees reduced; master's and doctoral; March 15; Ralph Field, Department of Adult and Occupational Education, Kansas State University, Manhattan, Kansas 66506, telephone (913) 532-5535.

Michigan State University

Teaching Assistantships (2); one-half time; 20 hours/week; $692-802 per month plus out-of-state tuition.

Research Assistantships (3); one-half time, 20 hours/week; $692-802 per month plus out-of-state tuition.

Fellowship (1); minority students, $8,000 per year plus tuition; all beginning September 15, 1985; Dr. Jake Wamhoff, Chairman, Agriculture and Extension Education, 410 Agriculture Hall, Michigan State University, East Lansing, MI 48824. Telephone: (517) 355-6580.

Mississippi State University

Research Assistantships (2); 9 or 12 months; July or August; $250-900; out-of-state fees waived; doctoral; March 1; Jasper S. Lee, Department of Agricultural and Extension Education, Post Office Drawer AV, Mississippi State University, Mississippi State, Mississippi 39762, telephone (601) 325-3326.

Teaching Assistantship (1); 9 months; August; $250-900; out-of-state fees waived; master's, educational specialist, or doctoral; March 1; contact same as above.

Montana State University

Graduate Research Assistantship (1); 9 months; $4,500; Montana Agricultural Experiment Station; Max L. Amberson, Head, Agricultural and Industrial Education, Montana State University, Bozeman, Montana 59717.

North Carolina Agricultural and Technical State University

Graduate Assistantships (1-2); 9 months; August; 10 hours/week; $300 per month; University; July 1; Dr. Albert W. Spruill, Dean, Graduate School, or A.P. Bell, Head, Department of Agricultural Education, North Carolina Agricultural and Technical State University, Greensboro, North Carolina 27411, telephone (919) 379-7711.

Graduate Research Assistantships (2); 12 months; August; 20 hours/week; $480 per month; USDA; July 1; A.P. Bell, Head, Department of Agricultural Education, North Carolina Agricultural and Technical State University, Greensboro, North Carolina 27411, telephone (919) 379-7711.

North Dakota State University

Graduate Research Assistant (1); 12 months; July 1; one-half time; $480 per month; master's; Agricultural Experiment Station; Dr. Don Priebe, Professor and Chairman, Agricultural Education Department, 102 Morrill Hall, North Dakota State University, Fargo, North Dakota 59105.

Graduate Technical Assistant (1); 12 months; one-half time; $480 per month; master's; College of Agriculture; contact same as above.

The Ohio State University

Teaching Assistantships (1-2); 12 months; July or later; one-half time; $535-700 per month; in-and out-of-state fees waived; doctoral; February 1; Dr. J. Robert Warmbrod, Chairman, Department of Agricultural Education, The Ohio State University, Agricultural Administration Building, 2120 Fyffe Road, Columbus, Ohio 43210-1099, telephone (614) 422-6321.

Research Associateships (3-4); 9-12 months; July or later; one-half time; $535-700 per month; master's or doctoral; February 1; contact same as above.

Teaching Associateships (2); 12 months; July or later; one-half time; $535-700 per month; in- and out-of-state fees waived; doctoral; March 1; Dr. Joe Gliem, Department of Agricultural Engineering, Ives Hall, 2073 Neil Avenue, Columbus, Ohio 43210, telephone (614) 422-8972.

Research Associateships (12-15); July 1 or later; one-half time; $650 per month, doctoral, $540 per month, master's; in- and out-of-state fees waived; February 1; (will accept applications year round); Dr. Robert E. Taylor, Executive Director, National Center for Research in Vocational Education, The Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210, telephone (614) 486-3655.

The Oklahoma State University

Teaching Assistantship (1); 10 months; September 1; 20 hours/week; $630-680 per month; out-of-state fees waived; August 1; doctoral; Dr. Robert Terry, Professor and Head, Department of Agricultural Education, 448 Agriculture Hall, Oklahoma State University, Stillwater, Oklahoma 74078, telephone (405) 624-5129.

Teaching Assistantship (1); 12 months; September 1; 20 hours/week; $630-680 per month; out-of-state fees waived; August 1; contact same as above.

Research Assistant (1); 12 months; September 1; 20 hours/week; $630-680 per month; out-of-state fees waived; August 1; contact same as above.

The Pennsylvania State University

Teaching and Research Assistantships (4); 12 months; August 20; 20 hours/week; $3,195 per semester; remission of fees; out-of-state; master's and doctoral; March 1; Dr. Samuel M. Curtis, Head, Department of Agricultural Education and Extension, 102 Armsby Building, University Park, Pennsylvania 16802, telephone (814) 865-1668.

Purdue University

Teaching Assistantship (1); 10 months; August; $494 per month; remission of fees; master's or Ph.D.; Extramural funding; March 1; Phyllis K. Lowe, Acting Chair, Vocational Education, Purdue University, South Campus Courts F-25, West Lafayette, Indiana 47907.

Virginia Polytechnic Institute and State University

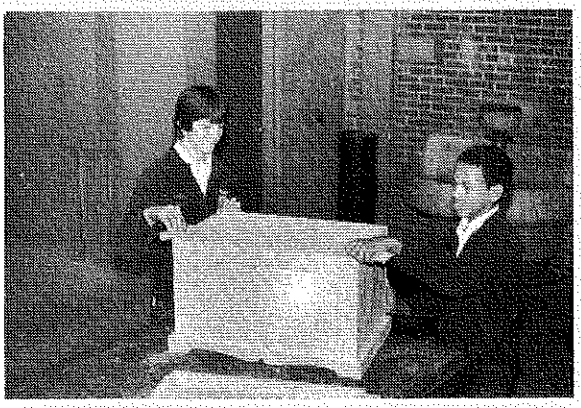
Instructor (1-2); 12 months; July 1; 20 hours/week; $1,050 per month; doctoral with 3 years teaching experience — two years teaching agricultural education; University; March 1; Dr. John Crunkilton, Agricultural Education, Room 222 Lane Hall, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

Assistant (1); 9 months; September 16; 20 hours/week; $625-750 per month; master's or advanced degree; University; March 1; contact same as above.

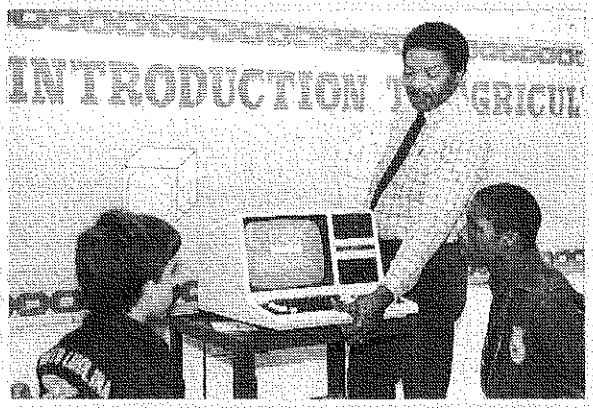
University of Wisconsin/River Falls

Graduate Assistantship (1-2); 9 months; September; 15-20 hours/week; $470-490 per month; remission of out-of-state fees; master's; state funding; April 1; Dr. Richard A. Jensen, Chairman, Department of Agricultural Education, University of Wisconsin/River Falls, River Falls, Wisconsin 54022, telephone (715) 425-3555.

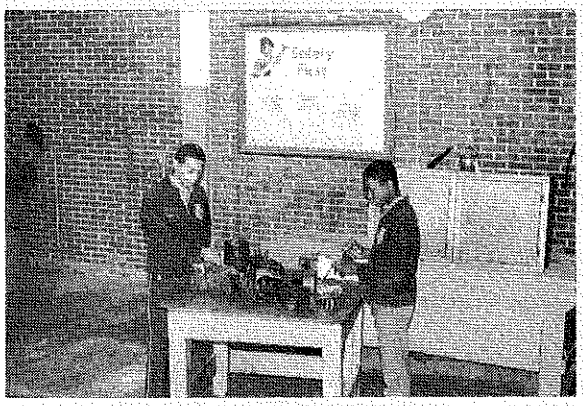
Teaching Strategies to Employ



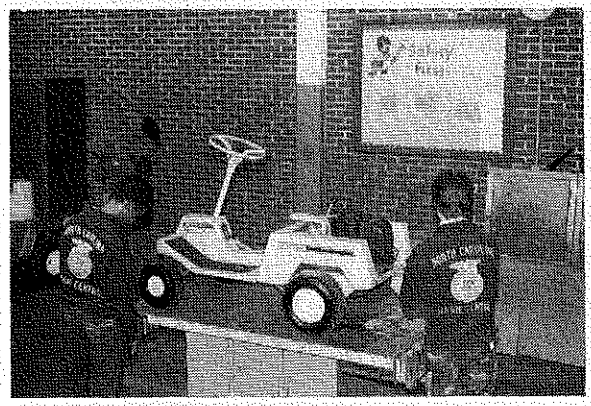
Small woodworking projects will increase interest.



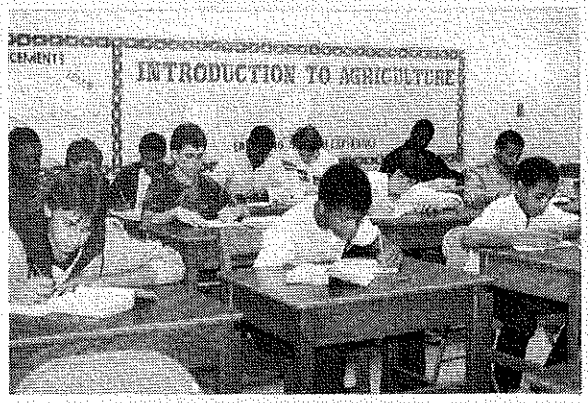
Computers are effective teaching aids to enhance learning.



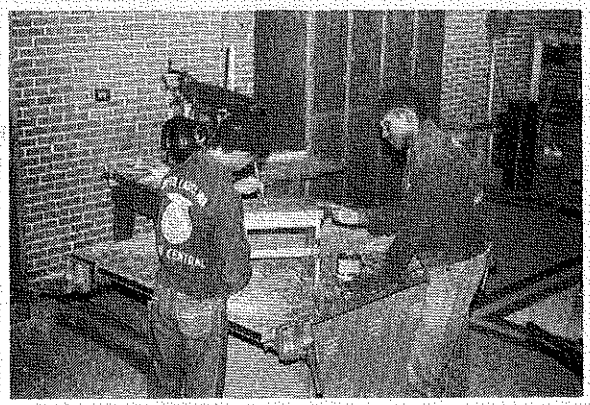
Small engine repair may lead to employment opportunities.



Fine tuning is often necessary in order to complete a simple task.



A strong classroom program produces good students.



Students are often encouraged by class members.

(Photographs courtesy of Marvin J. Roundtree, Vocational Agriculture Instructor, Nash Central Junior High School, Nashville, North Carolina 27956.)