With the taxpayer?

And now you and NACTA. NACTA is dedicated to the improvement of college teaching in agriculture; we hope in this way to help to solve our many problems.

What an excellent theme for our conference. "New Dimesions in Teaching Agriculture." NACTA can be proud that the caliber of its programs improve each year. I salute all of you who helped plan this conference, who have been on the program, and who are here as participants.

NACTA is a relatively young organization. As in any organization it always has and always will have problems and challenges. The founders of NACTA and many dedicated members have through the years done much for the organization.

We all undoubtedly believe in NACTA or we would not be at this conference. The purposes of NACTA are valid. The NACTA Journal is one of our real assets. It helps us to share our teaching experiences. Where else could this better be done? We would have more contributors to the NACTA Journal if they only knew about it. We should redouble our interest in the student affiliate, Delta Tau Alpha. Do you have a chapter on your campus?

Above all, I wish to stress that we need more members. With more members we would have a more successful organization, an improved financial basis.

As your incoming president it will be my pleasure to serve NACTA and you. I say this with sincerity. But we cannot have a successful year without your help. We need to depend not only on the committees but on you as individuals. Do help with recruitment of new members. Do contribute or solicit papers for the NACTA Journal. Do keep up your correspondence with your elected officers. Do write each of us with your comments and suggestions for the improvement of our organization.

With your good help we can and will have another successful year. I promise to do my part; I am confident you will do yours.

The Technical Student in the University Community

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Introduction

Every teacher, before he faces his class for the first time, should ask himself several questions. Who are these students? Where do they come from? What types of preparation do they have? What can I expect from them?

The planning of course content depends, at least partially, upon scientifically reliable data about students. Levels of difficulty in course materials, time sequences and duration, and course objectives are influenced by the abilities, aspirations and needs of the students.

Do the abilities, aspirations and needs of students in the technical agriculture programs and students working toward a degree in the College of Agriculture differ? This question should be foremost in the minds of all those who teach both technical students and degree students in agriculture. The answer is difficult, for there is very little 'scientific' data, especially psychological data, comparing the technical student and the degree student.

I would like to begin by reviewing some statistical data which were gathered on students attending the Institute of Agricultural Technology and the College of Agriculture and Natural Resources at Michigan State University. The purpose of this review is to indicate to you some of the data needed on students in order to develop a curriculum which will be relevant to the needs of the technical student.

Sociological Background

Who are these technical students and from what type of environment do they come? Norm Brown, in a survey conducted winter term of 1969, found that the percentage of students from the farm was approximately 60 percent for the technical students and 40 percent for the degree students. On the other end of the scale, the percentage of technical students from towns of 5,000 or more population was 20 percent, while the percentage of degree students from towns of 5,000 or more was 35 percent.

Other important factors, when considering sociological background, are the educational level and occupation of the parents.

In Brown's study it was found that approximately 23 percent of the fathers of both groups had less than a high school education. A larger percentage of the technical fathers had some high school education than did the degree fathers. In Brown's study 15.6 percent of the technical fathers had 'some college' as compared to 12.4 percent of the degree fathers. Conversely, 17.7 percent of the degree fathers were 'college graduates', while 10.8 percent of the technical fathers were college graduates. The mothers of the degree students, in general, had attained a higher level of education than the mothers of the technical students.

When the occupations of the fathers were considered, it was found that the percentages of fathers in both catagories who were blue and white collar workers were approximately the same. The differences occurred in the catagories of 'farmer' and 'professionals'. Forty-three percent of the technical fathers were farmers compared to 32 percent for the degree fathers, while 15 percent of degree fathers were in the professional catagory as compared to only three percent for the technical fathers. In both groups the majority of mothers were catagorized as housewives.

Psychological Background

If the technical students differ in their sociological backgrounds from degree students, how do they differ psychologically? To answer this question from a research standpoint, I will rely on a study by Anderson which was done in 1964 with all students in the College of Agriculture and Natural Resources and the Institute of Agricultural Technology at Michigan State University.

By use of the Sixteen Personality Factor Test, it was found that degree students are more intelligent, more assertive, quicker to grasp ideas and more likely to be successful in the classroom learning situation than technical students. Further comparisons indicated that the degree students were more emotionally mature, more stable, more realistic about life, less worried, less impulsive, more self-confident, free from suspicion and more self-sufficient.

The conclusion was drawn by Anderson that:

> '...(Agricultural Technology) students are more in need of counseling leading to greater emotional and social maturity than agriculture degree students. The process of maturation involves establishing a degree of independence in social interaction and these students do not appear to have the ability to establish themselves as independent social participants to the extent that degree students do; therefore, the need for guidance in developing greater social maturation is more crucial among the technical students than degree students'.

To determine the students' attitude toward physical mobility and change, Anderson used the MSU Work Beliefs

Check List. The technical students looked with disfavor on physical mobility and change. As indicated earlier, approximately 60 percent of the technical students are from the farm. It then follows that the technical students should be encouraged to reevaluate the concept of physical mobility for the opportunity to return to the rural area is becoming less available as most new jobs are found in the urban-industrial areas, even though these jobs may still be agriculturally related.

A positive attitude toward change is also essential for an individual. Society is oriented to progress and change and whenever certain members of society, in this case agriculturalists, fail to accept and encourage change, they are in a disadvantaged position to compete economically in urban-industrial society.

To measure the amount of dogmatism exhibited by students, Anderson used the **Rokeach Dogmatism Scale.** The Scale indicated that the technical students were more dogmatic than the degree students. Anderson concluded that different approaches to classroom instruction would be required for the two groups of students due to the difference in degree of dogmatism.

A measure of occupational aspiration was obtained through the use of the **Occupational Aspiration Scale.** It was found that the level of aspiration for the technical students was significantly lower than that of the degree students. It was concluded that technical students need more vocational counseling than the average degree student in order to raise their level of occupational aspiration.

Two other important factors to consider when looking for possible differences between technical and degree students are vocational choice and academic preparation.

Vocational Choice

Has the student made a vocational choice and if so, who had the greatest influence on this choice? Anderson and Brown reported similar data concerning the persons or things which influenced the student in making his particular vocational choice. The technical students were influenced most by (in order) father, mother, friend and vocational agriculture teacher. The degree students were influenced (in order) by father, interests and aptitudes (self), mother, friend and vocational agriculture teacher.

Academic Preparation

When considering academic preparation, one factor to consider is the size of the high school attended by the students. Brown's data indicated that approximately 21 percent of the technical students attended Class A high schools in Michigan, while 31 percent of the degree students attended such schools.

As previously mentioned, vocational agriculture teachers influenced the vocational choice of the students. Brown found that 53 percent of the technical students and 29 percent of the degree students had taken some vocational agriculture while in high school.

The Institute of Agricultural Technology has as entrance requirements, either a high school diploma or two years experience in the area of study. Because of these requirements, the high school grade point average for entering students is below that of the degree students. For the students accepted for enrollment fall term of 1970, 42 percent are below a 2.0, 46 percent are between 2.0 and 3.0 and 12 percent are above a 3.0 GPA in high school academic subjects. Based on high school GPA, a total of 12 percent of the students (those above a 3.0 GPA) accepted for technical programs, are eligible for acceptance into a four-year degree program at Michigan State University.

What is the best predictor of first term grades? Various research projects have found varying results. In the Ag. Production Program within the Institute of Agricultural Technology, it was found that the GPA for work in vocational agriculture was the best predictor, second was the GPA for high school academic subjects and third was the total score received on the **College Qualification Test.**

Anderson reported the scores on the **College Qualification Test** for the two groups of students. A highly significant difference in "total score" showed that the mean for the technical students was 83.6 compared to 123.8 for the degree students. It was the conclusion of Anderson that: "...because of the substantial difference between technical and degree students in regard to academic aptitude, technical students require different teaching materials and methods, evaluative processes and more educational advisement than degree students". Comparative data was not available for this past year, but the scores received by the present technical students compared very favorably with those of the technical students reported by Anderson. It would be safe to assume approximately the same relationship between the present technical and degree students as existed in Anderson's study.

The Institute of Agricultural Technology does not include a transfer program; nevertheless, 20 percent of Ag. Tech. students transfer into degree-granting programs at MSU. A student must have an Ag. Tech. GPA of 3.0 or above before he will be considered for a degree program. Research has shown that the GPA will drop one full integer the first term in a degree program. As would be expected the lowest grades were in the basic academic courses, while higher grades were maintained in those courses which were in the area of the student's technical interest.

The Technical Program

If the technical students have less academic ability, are more dogmatic and are in need of more counseling than their degree counterparts, what kind of educational program must be offered which will meet their needs?

Objectives

The starting point for the consideration of any educational program is the objectives of that program.

1. The objectives of a technical program as well as each course included in the program should be occupation-centered and planned toward occupational competence for the graduate.
2. The objectives should be developed by professional educators with the assistance of lay personnel from agricultural business and industry.
3. The objectives of the program should be such that a student is trained for a cluster of occupations rather than for one single occupation.
4. One of the major objectives of the program should be the immediate employability of the graduate in the occupational cluster for which he has been trained.
5. Provisions should be made to provide for the development of the individual person.
6. Student services are an integral part of the educational program of the technical student.

How do we meet these objectives? I would like to discuss three factors: curriculum, instructional staff and student services.

Curriculum

Although the technical curriculum does not result in the awarding of a college degree, it should be, nevertheless, thought of as a college education. This fact should be readily recognizable by students, school, staff, parents, employers, legislators, other educational institutions and the public-at-large.

As presented in the first part of this paper, the average technical student has less ability to read and understand, has a deficient educational background, has a high degree of dogmatism and has restrictive attitudes toward learning new ideas. Because of these factors, a technical student cannot compete on an equal basis with the degree student, especially in those courses where progress is gauged by means of the skills measured by the **College Qualification Test**; therefore, separate and distinct classes should be held for the technical student.

The curriculum should contain courses which are a balance between technical-supporting content and class-laboratory experiences. These are essential to the technical student if he is

to learn concepts, principles, and their application. The subject matter of the particular course will determine to some extent the selection of the best method of teaching; however, the lecture method is the least acceptable method for technical students.

The curriculum must contribute to the development of certain personal characteristics which are desirable. This is true of all education, but has greater implications for technical agricultural education because of the "disadvantaged" backgrounds of the students in the programs.

The technical student must be taught "how to figure it" or "how to look it up". Skills should not be taught in isolation, but related to the job experiences whenever possible, for a basic principle or generalization is more likely to be applied to a specific situation if that principle or generalization is learned in a context that relates specifically to the job, occupational area, product, or service with which the prospective technician will be dealing.

The difficulty level of the course content should be such that it can be mastered by a reasonably high proportion of the students. The depth and scope of such areas as mathematics and science must be tailored to the occupational needs of the students.

Irregardless of how well the curriculum has been developed, if the teachers do not have a philosophy which is sympathetic toward the technical student, proper education will not result. This then introduces the next area of concern.

Instructional Staff

One of the advantages of a technical program in the College of Agriculture is the availability of outstanding persons who are subject matter specialists in the field of agriculture. It is a known fact that not all of these persons will be good teachers for the technical students, but there is more potential in the four-year college or university than at any other type of institution, for selecting the proper individuals to teach the technical student. As mentioned above, the teacher in a technical program must be sympathetic toward the technical student. He must not consider these students as second rate citizens of the university community.

Any instructor of technical subjects should have the technical occupational competence in the area for which training is offered and should understand and have competence essential to successful performance as an agricultural technician.

The instructor in a technical course must demonstrate skills and techniques in the laboratory and must be able to help students gain proficiency in performing those techniques and skills. He must also teach the students how to prepare papers and do independent study using technical journals, tests, references and other materials found in a well-equipped library.

An essential job – maybe it should be called a duty – for the instructor is that of educational advisement of the students concerning the courses in which they come in contact. As Anderson indicated, the technical student is in more need of educational advisement than is the degree student. Those instructors of technical subjects should be more willing to practice an "open door" policy toward the technical student than with any other group in the student community. An instructor who meets these qualifications is in the words of Grant Venn "...a key man – an educator of profound worth".

Student Services

The term student-services includes three areas which affect the technical student: counseling, housing and student organizations.

Counseling and guidance should begin with the student as soon as he has been accepted for admission to the technical program. This can be accomplished by visits to the home of the student before enrollment. This allows the advisor to become acquainted with the student and his home situation. Very little can be accomplished in the way of constructive guidance if the advisor does not know as much as possible about the individual, including the home environment from which he comes.

The next step in counseling is the completion of a battery of tests by the student. We use the **College Qualification Test, Differential Aptitude Test** and the **Cooperative Reading Test.** The student should meet with his advisor after the results of the tests are available and should continue to meet throughout the term at regular intervals or whenever there is a need.

The advisee should be in a course taught by his advisor. An example of such a course would be a seminar. One objective of this seminar would be to meet some of the recommendations as given by Anderson. These include acquainting the student with the necessity for change and physical mobility; vocational counseling to raise his occupational aspirations; and exploring his vocational career choice to determine if it has been made on the basis of objective and realistic information.

A second objective of this seminar would be to help the student develop an understanding of himself and to foster the development of the leadership potential within the individual. The discussion of common problems of living and studying at the university is the third objective of the seminar. In other words, it is hoped through such a seminar that learning experiences would be provided which will help correct the personal deficiencies and attitudes acquired in the student's previous environment.

Technical students should be housed with degree students. The technical students should not be segregated from the degree students in the dormitories for if they are, this immediately brands them as second class citizens. Living in dormitories with the degree students will increase the maturity of the technical student as well as develop him socially.

The technical student should be encouraged to participate in the life of the university through organizations and activities. Just as degree students can participate in a student organization in their major fields, so should the technical students. This organization should be represented on the council of organizations of the College of Agriculture. This gives the technical student a feeling of being a first class citizen of the college with a voice in student affairs.

One problem with such organizations for technical students is the rapid turnover of the students. Effective leadership takes time, but the students are only around for two years; therefore, leadership development must be a part of the technical program as I have previously suggested.

Summary

The technical agriculture student in today's university can be classed as disadvantaged in that he is lacking in maturity, educational background and experiences, and proper attitudes toward new ideas.

The curriculum must be occupation-oriented to meet the needs of this student. The courses must be of an applied nature to make them more meaningful and valuable to the technical student.

A sympathetic instructor is essential to the technical program. Only those individuals who understand the technical student and are willing to devote time to educational advisement will be successful instructors in a technical program. Student services are very important to the technical student and should be given considerable emphasis in the university community.

The technical student may not possess those talents required for success in academia. This student does, however, possess the ability to master certain kinds of knowledge and skills which are very important if we are to accomplish the complex work of our society. The education of this student is very much in the realm of higher education and the university setting, but because of the type of student in the program, adjustments must be made, both by the student and the faculty before the student can reap the benefits of a technical college education.

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IN-SERVICE TRAINING

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Mr. R. T. Collier, Vice-President of Public Relations, Massey-Ferguson, Inc., recently stated:

> "Just to feed the population during the next 30 years, at present levels, we will need as much additional food as is currently produced by all farmers of the world."

Further, lower death rates, particularly a decrease in infant mortality, has brought about changes in the population age balance. In some countries 60% of the population is under 20 years of age. The youngest of all nations, the United States, boasts an average age of 25. In essence, the population explosion is also a youth explosion which greatly amplifies the urgency of agricultural education.

If we look backwards to the year 1945 we can cite three significant eras which our economy has witnessed. During the first era, beginning in 1945, we saw the horror of the atomic bomb and concurrently realized the hope of harnessed atomic energy. In 1955 man liberated himself from the two-dimensional world and soared into space. In 1965 man suddenly realized that, even with his almost unlimited silo of knowledge, food (or the lack of it) would ultimately dominate his thinking.

In the face of our vast but limited resources, we need to nurture all available talent with whatever education it takes to make it flower. This education takes many forms, one of which is in-service training.

To further prepare the stage for the task of addressing ourselves to a discussion of in-service training, let us first resolve another issue.

The more involved I become in this business of education, the more I realize that even educators, bent on the task of imparting bodies of knowledge and manipulative skills to students representing the full spectrum of our society, cannot agree on a philosophical base for their own institutions. I point to the fact that even the program chairman for NACTA's convention has listed Parkland as a junior college.

With deep respect for and commendations to Dr. Cecil Smith, and others who have diligently worked to provide a stimulating, rewarding program, I feel we should set the record straight. Better still, I feel we should liberate; liberate the junior college for the identity it rightfully deserves. Conceding that Parkland College and all emerging two-year colleges are certainly junior to all senior institutions in providing the first two years of formal schooling for those students pursuing baccalaureate and higher degrees, hopefully they are doing what all mushrooming two-year institutions should be doing—namely, 1) seeking out community needs and providing programs of study to satisfy these needs through the media of continuing education, transfer education, vocational and/or technical education, general studies and preparatory education; 2) determining ways they can articulate to the community the services they have to offer; 3) developing coalitions and partnerships with their communities in the interest of solving what the communities consider to be problems; 4) extending their campuses beyond the geographic confines established by the architects to bring the store front image in their respective communities. In essence, the comprehensive community college, a one-time "maverick" in the dimensions of education, should be recognized as a dedicated servant of its people that adds stature and dignity to its community.

Other NACTA participants have addressed themselves to articulation between junior and senior institutions and have noted worthy inroads made in aligning programs and objectives. Conceding that continued articulation is needed in this area, I feel it high time to bring identity back to in-service training programs. In Illinois these in-service training programs were birthed by our senior institutions and later orphaned by them as a result of increased emphasis on theoretical bases and research projects. We do, in fact, need to have provided that in-service training which is best shouldered by senior institutions. Still in today's technically based society we need also to provide in-service training for agricultural occupations instructors in areas that community colleges are best geared and tooled up for—namely, manipulative, technical and/or vocational skills.

And, as untimely as it may be, I strongly feel that if such training enables the educator to do a better job of teaching, regardless of its level or at what institution acquired, then that training should have attached to it some identifiable credit.

I cite the following cases in point:

1. In 1968 we, at Parkland, responded to group request to consider intensive in-service courses for agricultural occupations instructors. At that time we felt best able to offer a short course in engines and analysis. We did not limit enrollment to the confines of our district; rather, we opened enrollment to the state. As a result, we enjoyed the participation of 48 agricultural occupations instructors, geographically representing our state.

2. As an outgrowth of this experience we felt that the need existed for this type of training and now we are mid-way through a series of short courses catering to both business and industrially based personnel as well as agricultural educators. The following courses are presently being offered by our institution:

1) Engines and Electronic Analysis
2) Engine Service and Machining
3) Welding
4) Grain Grading and Testing
5) Land Economics
6) Management of an Agri-Business

These experiences have helped us to realize that in-service training is, in fact, a necessary and vital element in continuing education.

In summary, the illumination generated by educational innovation in our day reflects more brightly than history has