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OGUNDIPE, REBECCA MODUPEOLA

A STUDY OF THE SELF-PERCEIVED PROFESSIONAL EDUCATION
COMPETENCIES NEEDED BY VOCATIONAL AGRICULTURE TEACHERS
IN MICHIGAN

Michigan State University

Ph.D.

1980

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A STUDY OF THE SELF-PERCEIVED
PROFESSIONAL EDUCATION COMPETENCIES NEEDED BY
VOCATIONAL AGRICULTURE TEACHERS IN MICHIGAN

by

Rebecca Modupeola Ogundipe

A DISSERTATION

Submitted to
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in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

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1980

ABSTRACT

A STUDY OF THE SELF-PERCEIVED PROFESSIONAL EDUCATION COMPETENCIES NEEDED BY VOCATIONAL AGRICULTURE TEACHERS IN MICHIGAN

by

Rebecca Modupeola Ogundipe

The primary purposes of the study were: (a) to ascertain the educational and occupational characteristics of the vocational agriculture teachers in Michigan; (b) to determine the self-perceived professional education competencies needed by these teachers; and (c) to analyze the relationship between these needs and the characteristics of the teachers.

Design of the Study -- A mail questionnaire was used to collect the data from the 211 vocational agriculture teachers who were teaching in the area vocational centers and high schools in Michigan during the 1979-80 school year. Part I of the questionnaire consisted of 16 questions pertaining to the teachers' educational and occupational characteristics. Part II questioned them on their need to update or further improve in 95 selected professional education competencies. Descriptive statistics were used to summarize the data and chi-square

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statistics were used to test if there was any significant relationship between the characteristics of the teachers and the professional education competencies needed by these teachers.

Major Findings

1. Seventy-eight percent of the teachers were employed in the high schools while 22 percent were employed in area vocational centers.
2. Seventy percent were 40 years of age or less.
3. Seventy-two percent had Agricultural Education as their major when graduated from college.
4. Eighty-two percent graduated from Michigan State University.
5. Sixty-two percent were enrolled in vocational agriculture and 60 percent were FFA members while in high school.
6. Ninety-seven percent possessed a minimum of a bachelor's degree.
7. The largest group of teachers (51 percent) had Vocational Endorsement of Secondary Continuing Certificate.
8. Fifty-two percent had 10 years or more of practical work experience in areas of agriculture prior to teaching.
9. Sixty-two percent had more than 6 years of teaching experience in vocational agriculture.

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10. Eighty-six percent indicated an interest in participating in inservice activities within the next two years.

11. Seventy-five percent had training in Competency Based Education (CBE).

Fifteen competencies were rated as needed for updating by all the teachers.

The chi-square test results showed that there were significant relationships between seven characteristics of the teachers and certain competencies as follows.

1. The school where the teachers taught and four competencies: Assist students in developing self-discipline; Keep up-to-date professionally; Knowing youth labor rules and regulations; and Knowing MIOSHA rules and regulations regarding vocational facilities.

2. Teachers of different age groups and two competencies: Knowing legal liability of teachers and Engage students in supervised occupational experiences that are related to their occupational objectives.

3. University from which they graduated and three competencies: Assist students in developing self-discipline; Evaluate your instructional effectiveness; and Develop long-range plans for vocational agriculture program.

4. Their educational levels and two competencies: Determine needs and interests of students and Direct student laboratory experiences.

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5. Type of vocational teaching certificate they possessed and three competencies: Knowing legal liability of teachers; Engage students in supervised occupational experiences that are related to their occupational objectives; and Direct student laboratory experiences.

6. Their interest in participating in professional education inservice activities in the next two years and one competency: Keep up-to-date professionally.

7. The training they received in CBE and two competencies: Keep up-to-date professionally and Direct student laboratory experiences.

Recommendations - Recommendations included (a) giving inservice training to all the teachers in the fifteen competencies reported as needed by them; (b) using the following characteristics for grouping them for inservice training: the type of school where they were employed, major when graduated from college, educational level, type of vocational teaching certificates they possessed, and (c) using effective communication strategies to conduct the inservice training.

Dedicated to my husband, Olabanji
for his encouragement and assistance
throughout this study.

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ABBREVIATIONS

CBE	Competency Based Education
FFA	Future Farmers of America
MIOSHA	Michigan Occupational Safety and Health Act
ANRE	Agricultural and Natural Resource Education
AVA	Annual Vocational Authorization in Agriculture
TVA	Temporary Vocational Authorization in Agriculture
FVA	Full Vocational Authorization in Agriculture
SSP	Vocational Endorsement of Secondary Provisional Certificate in Agriculture
SSC	Vocational Endorsement of Secondary Continuing Certificate in Agriculture

CHAPTER 1

INTRODUCTION

Professional development is an exceedingly complex phenomenon that can be approached from many different view points (Rubin, 1978). It is perceived in different ways by college professors, school administrators, teacher association representatives, teachers, etc. These differences in perception and interpretations of the concepts of professional development result in a variety of unrelated professional development activities in local school districts and in state educational agencies across the nation (Michigan Department of Education, 1978). The Michigan Department of Education (MDE) defined professional development as a planned and organized effort to provide teachers and other educational workers with knowledge and skills necessary to facilitate improved student learning and performance (MDE, 1978).

If teachers are to increase their knowledge and acquire new teaching techniques essential for effective teaching, inservice education opportunities must be provided. The primary responsibility for inservice education developmental programs should be that of employers with support from teacher education institutions and the State Department of Education.

This study was undertaken with a view that if vocational agriculture teachers are expected to benefit from inservice education programs, one of the best motivational techniques to assure attentiveness and participation is to provide programs in the area that the teachers themselves indicate as their professional areas of need.

Statement of Problem

The concerns of society regarding schools have caused many educators and administrators to reexamine the methods and delivery systems by which teachers are prepared for teaching in public schools. During the 1978-79 academic year, the Agribusiness and Natural Resources Education (ANRE) faculty at Michigan State University reassessed certain components of the program. At that time the problems of new and returning vocational agriculture teachers in Michigan were identified as one of the highest priority concerns of the faculty. Among other problems encountered was a limited amount of up-to-date information on the inservice education needs of all the vocational agriculture teachers in Michigan. This created a problem for teacher educators in their efforts to plan effective inservice education programs.

Need for the Study

1. Since the passage of the Smith-Hughes act in 1917, the responsibilities and duties of teachers of vocational agriculture have increased tremendously (Morris, 1956). This along with changes in the society and school curricula necessitated a need for periodic reappraisal of professional education competencies needed by these teachers. The competencies judged important by the teaching personnel themselves and teacher educators who work with them also needed to be identified.
2. The student enrollment in secondary vocational agriculture programs in Michigan showed a consistently large figure for the past four academic years; 14,424 students for 1975-76; 14,916 for 1976-77; 14,406 for 1977-78; and 14,414 for 1978-79 (MDE, 1979). Enrollment figures of this magnitude justified the need to continue preparing competent vocational agriculture teachers for Michigan vocational agriculture programs.
3. There was an inadequate supply of professionally trained vocational agriculture teachers in Michigan. Because of this limited supply, non-college degree personnel from business and industry (annual authorized certificate holders) and four-year college technical agriculture majors (temporary vocational authorization certificate holders) were employed by local

educational agencies (Moore, 1979). The employment of these types of personnel directly from non-teaching occupations assured only part of the qualifications desired of a competent teacher. According to Schmitt (1971), these individuals usually possess high competence in technical subject matter, but lack professional teacher education training. Schools which offer vocational agriculture programs like other programs in schools should be vitally concerned with the quality and teaching effectiveness of their staff. In order to assure some degree of teaching effectiveness, many teacher educators and supervisors were of the opinion that vocational agriculture teachers like other teachers should be provided professional education opportunities through teacher education inservice activities.

4. There was a need for providing more information to teacher educators and supervisors in agricultural education for planning and conducting more relevant inservice teacher education programs for all the vocational agriculture teachers in Michigan. It should be realized that effective inservice education for agricultural teachers is a complex process involving many people and agencies. The central figure, however, is the teacher. Therefore, the teacher's needs must be accurately assessed and all available resources

must be mobilized to meet these needs. By mobilizing the available resources, it is possible to provide appropriate support services for sophisticated programs in agriculture and maintain a cadre of teachers to meet the challenges of the future.

There were other reasons why the inservice education needs for vocational agriculture teachers seemed to have been essential. According to Cooper (1977), in the past, teacher education institutions were geared to provide the best pre-service education possible for teaching agricultural production. However, many pre-service programs were designed to prepare prospective teachers for specializing in one of the major options such as agricultural production, agricultural supplies, agricultural mechanics, agricultural products, ornamental horticulture, agricultural resources, and forestry. The addition of new options in existing programs required teachers to update or expand their knowledge and skills but it was not an easy task for any single person to obtain the kind of expertise required to be a proficient teacher in all these areas. It was also difficult in a time of short teacher supply to place teachers in programs matching their credentials. In view of these circumstances it was essential to plan and conduct inservice activities which reflected the teacher's

expressed needs so as to close the gap between a teacher's preparational deficiencies and the local program needs after a teacher was hired.

5. The researcher was also of the opinion that a study which ascertained the professional abilities needed by vocational agriculture teachers would be of great value. A study of this nature would make a significant contribution to teacher education in agriculture. Ellis and Wootton (1970) expressed that teachers need a constant check on themselves to see how well they are doing. They also pointed out that teaching needs to be evaluated for its effectiveness. Wentling and Lawson (1975) felt that teaching personnel evaluation regardless of the method utilized should provide information which will illuminate an individual's strengths and exemplary characteristics as well as his/her weaknesses. When weaknesses are uncovered, the educator or trainer can begin to identify ways and means of remedying these deficiencies.
6. Finally, a need existed for any study which purported to shed some light on improving the effectiveness of teachers of vocational agriculture. Miller (1972) reported that the professional improvement and development of instructional personnel is regarded by many educators as the primary goal of any staff evaluation procedure. Drawbaugh (1972) also reported that an effective

teacher of vocational agriculture who keeps himself updated professionally and technically is the foundation of a sound local program.

Purposes of the Study

The primary purposes of the study were, (a) to ascertain the self-perceived professional education competencies needed by vocational agriculture teachers in Michigan, and (b) to analyze relationships between these needs and various characteristics of the teachers. It was this researcher's opinion that this information would be helpful to teacher educators in planning and implementing effective inservice education programs for vocational agriculture teachers in Michigan.

Objectives of the Study

The study was designed to seek answers to the following questions:

1. What are the educational and occupational backgrounds of the vocational agriculture teachers in Michigan?
2. What are the self-perceived professional education competencies needed by vocational agriculture teachers in Michigan?

Additionally, the objectives to follow were formulated:

1. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the types of schools where they taught.

2. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their age groups.
3. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their major at the time of graduation from college.
4. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the universities from which they graduated.
5. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and enrollment in vocational agriculture in high school.
6. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and FFA membership in high school.

7. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their educational levels.
8. To determine if there was any relationship between the self-perceived professional education competencies needed by the following five groups of vocational agriculture teachers in Michigan:
 - a. Annual vocational authorization in agriculture;
 - b. Temporary vocational authorization in agriculture;
 - c. Full vocational authorization in agriculture;
 - d. State secondary provisional certificate with vocational endorsement in agriculture; and
 - e. State secondary continuing certificate with vocational endorsement in agriculture.
9. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the years of practical work experience before teaching in the areas of agriculture.
10. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational

agriculture teachers and their years of teaching vocational agriculture.

11. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their interest in participating in professional education inservice activities in the next two years.
12. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the training received in Competency Based Education (CBE).
13. To determine if there was any relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and where they received their CBE training.

Basic Assumptions

The following assumptions were accepted by the researcher in selecting the list of professional education competencies and the vocational agriculture teachers in the study:

1. The lists of professional education competencies developed, field tested and revised by Cotrell, et. al. (1972), Moore (1974) and Ferns (1978), were valid lists of important competencies for vocational secondary and post-secondary teachers.
2. The Guidelines and Standards for quality vocational programs in Agriculture and Agribusiness Education given in the Administrative Guide for Vocational Education in Michigan are valid program guidelines and standards for program quality.
3. The selected educators who reviewed the questionnaires for this study were qualified to identify the professional education competencies needed by the vocational agriculture teachers in Michigan.
4. All the teachers included in the study were engaged in conducting vocational agriculture programs in Michigan.
5. All the teachers included in the study understood their professional role as teachers of vocational agriculture and answered honestly.

Limitations

The researcher recognized that this study had the following limitations:

1. Only professional education competencies were investigated. The study excluded other competencies such as technical knowledge and skills which are among the essential qualifications that vocational agriculture teachers should possess.
2. The respondents could possibly have varying interpretations of the professional education competencies needed by successful teachers of vocational agriculture in secondary vocational agriculture programs.

Definition of Terms

The following are the conceptualizations of the selected terms used throughout the study:

1. Professional Education Competencies - Tasks associated with the teaching profession which are performed by vocational agriculture teachers and require some degree of proficiency in the following areas:
(1) program planning, development and evaluation;
(2) instructional planning; (3) instructional execution-techniques; (4) instructional execution-individualizing; (5) instructional evaluation;
(6) instructional management; (7) guidance and placement; (8) school community relations; (9) Future

Farmers of America (FFA); (10) professional role and development; (11) supervised occupational experience; and (12) contemporary topics.

2. Annual Vocational Authorization in Agriculture -

If a candidate does not meet the standards outlined for temporary vocational authorization, the Department of Education is responsible for determining the adequacy of candidates combined educational, occupational and teaching experience for receiving permission to teach for one year. This annual vocational authorization is planned primarily for persons who are teaching only vocationally approved agricultural courses and is renewable annually upon the recommendation of the employing local school district.

3. Temporary Vocational Authorization in Agriculture -

A temporary vocational authorization certificate is issued to an applicant upon the report of a designated vocational teacher education institution that such an applicant presents evidence that he has met the following requirements:

- (a) Possesses a baccalaureate degree.
- (b) Has a major or minor in the field of specialization in which vocational authorization is

being requested or equivalent graduate credits to substitute for the required major or minor.

- (c) Has a minimum of 2 years of experience in the area concerned or has completed a planned program of directed supervised occupational experience approved by the state board. The occupational experience is characterized by its relevancy and recency. Temporary vocational authorization is valid for teaching specific courses and is valid for 6 years.

4. Full Vocational Authorization in Agriculture - A

full vocational authorization is issued to the teacher who has met the following requirements:

- (a) Has taught successfully for 3 years according to the validity of his/her temporary vocational authorization as determined by the state board upon recommendation of the sponsoring institution and the local school district.

- (b) Holds a Master's degree or has completed 15 term credits including at least:

Agricultural Education	9 credits
Vocational Education	3 credits
Technical Agriculture	3 credits

It is valid for continued teaching in specific courses.

5. State Secondary Provisional Certificate with Vocational Endorsement in Agriculture - A state secondary provisional certificate with vocational endorsement is issued to a teacher who presents evidence of completing:

- (a) A program in vocational teacher education at an institution approved by the state board for the preparation of vocational teachers in the occupation area of the endorsement.
- (b) A major or minor in an approved program in the occupational area of the endorsement.
- (c) Two years of work experience in occupational area of the endorsement or completion of a planned equivalent program of directed supervised occupational experience approved by the Department of Education. The occupational experience is characterized by its relevancy and recency.

This certificate is valid for 6 years.

6. State Secondary Continuing Certificate with Vocational Endorsement in Agriculture - A state continuing certificate with a vocational endorsement is issued to a teacher who has completed the following requirements after the issuance of the state provisional and vocational endorsement:

(a) Taught successful for 3 years according to the validity of his provisional certificate and vocational endorsement and as determined by the state board upon recommendation of the sponsoring institution and the local school district.

(b) Holds a Master's degree or has completed 27 term credits including at least:

Agriculture Education	9 credits
Vocational Education	3 credits
Technical Agriculture	3 credits

7. Inservice Training in Agricultural Education - Programs, courses, workshops, seminars, offered by colleges, universities, local school districts, and state departments designed to increase the proficiency of currently employed secondary vocational agriculture teachers.
8. Competency Based Education (CBE) - An approach to teaching and learning which specifies the competencies to be demonstrated by the student and makes explicit the criteria to be applied in assessing the students' competencies. Competency based instruction requires that students master prescribed skills, knowledge and/or attitudes to some predetermined level.

9. Area Vocational Education Centers - In Michigan an area vocational center is a centrally located facility designed and equipped to provide vocational education programs for two or more schools.
10. Future Farmers of America (FFA) - FFA is the national organization of, by and for students of vocational agriculture/agribusiness in public secondary schools, under the provisions of the National Vocational Education Acts.

CHAPTER II

REVIEW OF LITERATURE

Many teacher educators recognize that the proficiency of teachers is very essential to achieving a quality educational program. Secondary vocational schools as well as other institutions of learning should therefore be very concerned with the quality and effectiveness of their teaching staff.

Several studies have focused on the professional education competency needs of vocational teachers in general (Erpelding, 1972; Cotrell, et al. 1971). Some studies have also sought to determine the professional education competencies required by beginning vocational agriculture teachers within specific states (Morris, 1956; McGhee, 1967; Garner, 1974; Moore, 1974; Hylton and Lee, 1979; Witmer and Mortensen, 1979). The findings from these studies, however, cannot be generalized to every state. This is due to the fact that vocational education in agriculture/agribusiness in the United States has some aspects in common, but at the same time possesses uniqueness among regions of the country and among states within regions. It is therefore very

essential that needs assessment be conducted with specificity to the professional education competencies needed by vocational agriculture teachers in each state.

Professional Education Competencies Needed By Vocational Agriculture Teachers

Barr (1950) summarized some studies on the causes of failure among teachers. He listed the deficiencies in any of the following areas as the most common causes of failure among teachers:

Control over the technique of teaching

Ability to maintain order and discipline

Mastery of subject matter

Intelligence

Effort

Initiative

Adaptability

Common sense

Physical ability

Standards of teaching

Ability to carry on

Singleness of purpose

Sympathetic understanding of pupils

Social background

Knowledge of what people can do

Personality

Moral standards

Although all of these characteristics may not be considered as professional education competencies, most of them are of importance in effective teaching. Barr further stated that teachers should possess the competency to direct the learning process, counsel students, maintain desirable professional and community relationships.

Montgomery (1952) determined the felt needs of teachers of vocational agriculture in Alabama for assistance in meeting problems in the professional phase of their work. He also ascertained the services these teachers expected from the Department of Agricultural Education in the Alabama Polytechnic Institute for their personal improvement in meeting these needs. Two hundred and fifty-two teachers of vocational agriculture were included in the study. A statistical analysis was also made of the inservice activities of the teachers from records in the State Department of Education supplemented with a survey. The problem checklist consisted of 368 problem items. The data concerning services or improvement desired by the teachers were obtained from a questionnaire. The rank of the 10 areas of professional problems on the basis of the average number of problem items in the areas checked by as many as 20 percent of the teachers were:

1. Teaching all - day boys
2. Advertising an FFA chapter
3. Providing adequate physical facilities
4. Maintaining favorable community relationships
5. Maintaining favorable professional relationships
6. Teaching young and adult farmers
7. Discovering needs and setting goals
8. Placing and following up students
9. Evaluating the program
10. Keeping records and making reports

The ten most effective inservice education procedures as ranked by the ratings made by the teachers used in the study were:

1. Graduate work
2. Subject matter services
3. Supervisory services
4. Conferences
5. Non-credit short courses
6. Literature (other than subject matter services)
7. Newsletters
8. Technical services
9. Local programs of inservice education
10. Assistance in evaluation

Recommendations included (1) organization of an advisory committee composed of supervisors, teachers

and teacher trainers who would assist in planning, promoting and evaluation of inservice education; (2) making provisions for exchanging ideas through transfer of more resident credit between graduate schools, exchange of staff members and greater use of visiting professors; and (3) expansion of the present study to include technical as well as professional needs.

Santos (1961) determined the inservice training needs and participation in inservice training programs by teachers of agricultural schools of the Phillippines. He made use of a questionnaire containing 27 items of need to collect the data from teachers of 25 agricultural schools and administrators of 32 agricultural schools. The rating was done on a five point scale. Santos found that administrators and teachers agreed on the teachers' needs for inservice training; but the administrators and teachers disagreed on the priority of these needs. The needs expressed by the teachers when grouped into areas according to priority were as follows:

1. Research and experiments
2. Subject matter content
3. Methods
4. Co-curricular activities
5. General Education
6. Administration and Planning

The administrators, however, expressed the needs for:

1. Administration
2. Supervision
3. Curriculum
4. Guidance
5. Public relations

Noor (1965) determined the inservice education needs of secondary teachers in East Pakistan as perceived by administrators, teachers and consultants directly or indirectly connected with the inservice education of the teachers. He collected data from 222 secondary school teachers, 45 administrators and 13 consultants. He used 3 different instruments plus personal tape recording for in-depth interviews. Instrument A consisted of six open-ended questions and was administered to the secondary school teachers only. Instrument B requested multiple choice responses and was administered to all the subjects in the sample, while Instrument C which was a survey questionnaire with checklists was administered by mail to the administrators only. The major findings from this study included the administrators rating their need and the need of the teachers for inservice education higher than the teachers in most of the 226 need items. The differences between the administrators and teachers

on the relative "degree of need" of different items were statistically insignificant in most cases. The differences in perception between the administrators and the teachers were also not significant enough to cause practical problems. The teachers expressed great need in the areas of library facilities and curriculum. The administrators expressed great need in the areas of curriculum and personality. The preferred inservice education activities were (a) organized educational trips, (b) intervisitation of schools, (c) workshops and (d) faculty meetings directed to professional improvement.

Byrd (1966) conducted a study concerned with teacher competencies. He reported that the teacher has distinctive roles in assuring continuity in the process of occupational training and competency in all phases of vocational and technical education. He considered the basic competencies needed as technical and personal. The personal competencies included role commitment, personal involvement, recognition and transmission of respect for the dignity of work.

McGhee (1967) identified the professional and technical needs of vocational agriculture teachers as they related to vocational agriculture programs in West Virginia. The questionnaire was rated by vocational agriculture

teachers, state staff in teacher education and supervision, and principals in schools having vocational agriculture departments. The principals and the teachers of vocational agriculture rated the selected professional and technical skills according to the importance of the skills and the vocational agriculture teachers' competency for performing them. The state staff indicated the percent of vocational agriculture teachers who needed improvement in selected professional skills. The professional areas rated above average in importance to the program of vocational agriculture were: (a) Instructional activities, (b) Supervised work experience, (c) Instructional material, (d) Organization and planning, (e) Future Farmers of America, (f) Off-farm agricultural occupations, (g) Relationship to school, (h) Young and adult farmer programs, (i) Public relations. The greatest needs of the vocational agriculture teachers for assistance in their professional development were in these areas: (a) Off-farm agricultural occupation using advisory committee, (b) Young and adult farmer work, (c) Making proper use of bulletin boards, (d) Occupational experience programs and (e) Public relations. McGhee recommended the provision of both off campus and on-campus inservice education to meet the needs of teachers. This included on-the-job supervision, conferences, seminars, short courses, workshops,

and regular program courses and workshops equivalent to graduate school standards.

Cotrell and other researchers (1971) conducted several studies at the National Center for Research in Vocational Education, Ohio State University. One of the studies identified the professional education competencies needed by vocational and technical education teachers. The first phase of this project was initiated to develop, demonstrate and test curriculum for the preparation and inservice education of vocational and technical education teachers. During this phase, 237 competencies were identified by a task force representing seven vocational services (Agriculture, Business and Office, Distributive, Health occupations, Home economics, Technical, Trade and industrial education). Occupational analysis using introspection and interview techniques was utilized to identify the competencies. In order to verify the existing competencies and establish new competencies, the original competencies were screened by task forces of master teachers, teacher coordinators and others across the nation. The conclusion of the study was that most pedagogical competencies for teachers were common to all vocational services. It was also concluded that meaningful and specific objectives could not be developed without consideration for a particular institutional setting.

In the second phase of the project, Cotrell, et. al. (1972) identified the competencies of teacher-coordinators in off-farm agriculture, distributive, wage-earning home economics, office occupations, special needs and trade and industrial education. The competencies important to teacher-coordinators were selected by a 300-member national task force committee of outstanding teacher-coordinators. This task force represented eleven states having great experience with the types of cooperative programs in the study. From the data of Phase I and II of the project, 384 competencies were finally identified. These competencies were classified into the following 10 categories:

1. Program planning, development and evaluation
2. Instruction-planning
3. Instruction-execution
4. Instruction-evaluation
5. Management
6. Guidance
7. School-community relations
8. Student vocational organization
9. Professional role and development
10. Coordination

The primary contributions of this project were:

1. Identification of an original, comprehensive listing of teacher and teacher-coordinator competencies.
2. Development of individualized, performance-based instructional modules.
3. Usefulness of the performance objective listing to several other Competency-Based Teacher Education (CBTE) projects in vocational education.

Terry (1972) reported that vocational teacher educators from eight Illinois universities, while gathered at a conference, produced a set of approximately 225 vocational teacher competencies clustered into the following eight groups: (a) Philosophy, (2) Organization and administration, (3) Educational programs and long-range planning, (4) Financial resources, (5) Staffing, (6) Physical facilities-equipment, (7) Student personnel services - placement and follow up, (8) Community relations and learning resources. This list was validated in a second vocational teacher educator conference in 1972. At this conference, 99 percent of the competencies were rated as "essential".

In order to determine self-ratings of professional education competency needs of vocational agriculture teachers in Ohio, Moore and Bender (1975) surveyed 555 secondary vocational agriculture teachers in Ohio during the 1973-74 school year. The population was stratified into three groups:

1. Four year college agricultural education majors;

2. Four year college technical agriculture majors;
and
3. Non-college graduates recruited from business
and industry

Mail questionnaires were used to collect data from the college agricultural education majors and technical agriculture majors while personal interviews were used for the non-college graduate teachers. The questions covered educational/occupational backgrounds of the teachers, their perceptions of the importance of 256 professional education competencies and their perceptions of their proficiency in these competencies. From this study it was found that the number of competencies most needed by the three groups of teachers varied considerably. The inservice education needs for the 256 competency items were 23 items for professionally trained teachers, 99 items for technical agriculture majors and 255 for non-college graduates. The researchers recommended that Ohio teacher educators and supervisors in agricultural education should continue to evaluate the competency needs of the three groups of teachers in up-dating pre-service and inservice teacher preparation programs.

Bonner and Brown (1977) conducted a study concerning the important role of the FFA advisor. The purpose of their study was to identify the competencies needed by FFA advisors (vocational agriculture instructors) in Mississippi. A list of 108 competency statements

classified into seven categories was mailed to seventy-eight FFA advisors. These FFA advisors were stratified according to the following independent variables: (1) Age, (2) Race, (3) Tenure as an FFA advisor, (4) Educational level, (5) Number of years of FFA membership in high school, (6) Number of members enrolled in the FFA program, (7) Percentage of vocational agriculture students enrolled in the FFA, (8) Type of area where the FFA program was located, (9) Type of school where the FFA program was located, and (10) The perceived importance of the FFA to the vocational agriculture program. Each of the FFA advisors was asked to rate each competency statement according to the degree needed to operate an FFA program successfully. A four point degree of importance scale was used with 1 representing not needed, 2 representing needed some, 3 representing needed much and 4 representing essential.

The following are the findings from their study:

1. Sixty-six (61 percent) competency statements out of the selected one hundred and eight competency statements used for the survey were rated as being needed to a high degree by the FFA advisors. These competencies were rated with mean scores of 3.00 or higher.

2. Forty-two (39 percent) competencies were rated according to a level of being needed to some degree by the FFA advisors.
3. The competencies needed by these FFA advisors were from seven categories namely: Professional category, Communication/Public Relation category, Program planning, Program evaluation, Guidance and Management.
4. The variables of age, race, number of members enrolled in the FFA program and the type of school where FFA program was located had a negligible effect on the perceived importance of the competencies. However, the other variables listed below were found to have some influence on the perceived importance of the competencies.
 - a. Respondents with very high tenure levels were found to have rated the competencies higher than respondents with other tenure levels.
 - b. Respondents with higher educational levels gave competencies higher ratings than did respondents of lower educational levels.
 - c. Respondents who were FFA members for four years or more in high school rated competencies higher than respondents of other levels of high school FFA membership.

- d. The increasing perceived importance of the FFA to the vocational agriculture program was found to be accompanied by higher rating of the competencies. Teachers who had more teaching experience and more education, who were members of the FFA for four or more years, and who perceived FFA as being highly important to the vocational agriculture program tended to rate the competencies as more important than did other teachers.

Hylton and Lee (1979) determined and compared the self-perceived teaching effectiveness of vocational agriculture/agribusiness teachers in the southern region of the United States. Mailed questionnaires were used for data collection. The instrument was designed to obtain biographical and professional information on the respondents. The study also assessed the self-perceived teaching effectiveness of the respondents on 39 commonly performed competencies of vocational agriculture/agribusiness teachers. They divided the competencies into the following categories: program planning, classroom and laboratory instruction, FFA, supervised occupational experience programs, adult education, public relations, advisory committees and professionalism.

The following were the conclusions from this study with specificity to vocational/agribusiness teachers in the southern region of the United States:

- a. Teachers of vocational agriculture/agribusiness who had received the education specialist degree perceived themselves higher on many of the competencies of teaching effectiveness as compared to those with baccalaureate and master's degrees.
- b. Vocational agriculture/agribusiness teachers who received their baccalaureate degree from land-grant colleges or universities created under the 1890 Morrill Act or nonland-grant colleges or universities perceived themselves higher on many of the competencies of teacher effectiveness as compared to those who received their baccalaureate degree from a land-grant college or university created under the 1862 Morrill Act.
- c. Teachers of vocational agriculture/agribusiness who were enrolled in vocational agriculture/agribusiness in high school perceived themselves higher on competencies of teacher effectiveness than those who had not been enrolled.
- d. Past membership in the FFA in high school had helped vocational agriculture/agribusiness teachers in the southern region of the United States,

especially in the competency area of FFA where they perceived themselves higher on many of the competencies as compared to those who had not been members.

- e. The number of years of practical work experience in areas of agriculture/agribusiness before teaching had little effect on the self-perceived teaching effectiveness of vocational agriculture/agribusiness teachers.
- f. Black teachers of vocational agriculture/agribusiness perceived themselves higher on many of the competencies performed by vocational agriculture/agribusiness teachers as compared to white teachers of vocational agriculture/agribusiness.
- g. Black teachers of vocational agriculture/agribusiness received their baccalaureate degrees primarily from colleges and universities created under the 1890 Morrill Act or nonland-grant colleges or universities. White teachers primarily received their baccalaureate degrees from colleges or universities created under the 1862 Morrill Act or nonland-grant colleges or universities.

Professional Education Competencies Needed by Beginning Teachers of Vocational Agriculture

Huston (1953) brought together some findings based on the opinions of teachers on the professional problems they encountered during the first year of teaching experience in vocational agriculture in the public secondary schools in Arkansas. The data for the study were collected through personal interviews with each of the 86 teachers of vocational agriculture who were teaching in the public secondary schools of Arkansas during 1951-52 school year. He reported that the teachers expressed varying degrees of difficulty in performing selected professional activities. These activities were classified into 12 major areas during their first year of teaching experience in vocational agriculture. The five areas indicated by the teachers as causing most difficulty during their first year of teaching are arranged in order of rank as follows:

1. Program of instruction for out of school groups
2. Program planning
3. Supervised farming
4. Instruction in farm mechanics
5. Program of classroom instruction for all day classes

Morris (1956) analyzed the teaching competencies of prospective teachers of vocational agriculture in 16 states in U.S.A. He developed a list of 154 competencies in questionnaire form from the literature on teacher education. A committee of professional educators reviewed the list of competencies. The questionnaire was sent to 397 selected Negro teachers of vocational agriculture in the 16 states. These teachers used a rating scale ranging from 0 to 5 to rate the degree of importance and the degree of importance and the degree of development of each competency. He found that the teachers rated the competencies in the area of "public relations" higher in importance and development than those competencies in the areas of "Planning and Organizing" and "Teaching". The investigator made the following conclusions from his findings:

1. The professional competencies he listed in his questionnaire had a direct relationship to effective teaching in vocational agriculture.
2. All the competencies were very important and needed high degree of preservice development.
3. The best way of obtaining the level of preservice development for each competency was through the ratings made by the less experienced teachers.

4. Competencies in the area of "public relations" needed a higher degree of preservice development than those in the other areas.

Conyers (1958) studied beginning teachers of vocational agriculture to ascertain the importance of different required activities of their jobs. He also determined the extent of difficulty that these teachers experienced in performing their jobs. He developed a list of the activities which teachers of vocational agriculture were expected to perform. Thirty-four teachers rated each of the activities using a rating scale of 0 to 5. The rating was based on the degree of importance of the different activities and the extent of difficulty encountered in performing the different activities. He found that ratings of 4.00 and above, indicating great importance, were quite common in the teachers' evaluation of the importance of the required activities of their jobs. Also in the rating of the extent of difficulty of activities of the teachers' job, he found that the teachers experienced limited difficulty in performing their required activities. This was attested by the fact that no area studied received an average difficulty rating as great as 3.00. Where average difficulties as large as 2.00 were reported,

he concluded that the preservice program for training teachers had failed to emphasize these particular areas of the program of vocational agriculture.

Witmer and Mortensen (1979) conducted a study on the professional education competencies needed by beginning teachers of agriculture/agribusiness education in Pennsylvania. The study included 112 competencies in the areas of management, guidance, school community relations and professional role and development. The competency needs were determined based on perception of cooperating teachers, inexperienced teachers, intern teachers, state staff and teacher educators. From the study, they drew the following conclusions:

1. The competency level necessary for a beginning teacher of agriculture/agribusiness education was perceived similarly by the three groups of teachers, the state staff and the teacher educators.
2. The three groups of teachers, the state staff and the teacher educators perceived that at least average competence was necessary for 107 of the 112 competencies included in the survey.
3. The teacher educators placed more emphasis on the importance of professional education competencies than the state staff and the three groups of teachers.

Professional Education Competencies Needed by Beginning and Experienced Teachers of Vocational Agriculture

Deboer (1954) determined the differences in the problems of a beginning vocational agriculture teacher in South Dakota going into an established department and a beginning teacher starting a new department. He also compared the problems of the new teachers and teachers with previous experience. Questionnaires were sent to teachers who started new departments, teachers who went into established departments, teachers who had completed three months of teaching and teachers who had completed 1, 2 and 3 years of teaching. He found that there was no significant difference between the problems of the new teachers and those with previous experience. Also, emphasis was found to be needed in the following areas arranged in order of importance:

I. Supervised farming

- a. Maintaining satisfactory records
- b. Initiating and developing the supervised farming program

II. Farm mechanics

- a. Securing adequate shop space
- b. Determining content and scope of the farm mechanics program
- c. Developing a home farm shop

III. Future Farmers of America (FFA)

a. Financing chapter activities

IV. Classroom teaching

a. Planning time for individual instruction

Bryant (1963) determined the priorities which beginning teachers of vocational agriculture in North Carolina gave and perceived should be given to 10 teacher professional roles. He also compared the priorities of these beginning teachers with those of experienced teachers. Data were obtained by means of a "role priority questionnaire" from 41 experienced and 40 beginning teachers of vocational agriculture in North Carolina. Four comparisons were made as follows: (1) the priority beginning teachers gave with the priority they perceived should be given; (2) the priority beginning teachers gave with the priority experienced teachers gave; (3) the priority beginning teachers perceived should be given with the priority experienced teachers expected of beginning teachers; and (4) the priority beginning teachers gave with the priority experienced teachers expected them to give the 10 teacher roles. Responses were given on two 5 point scales. One scale was for priority given by each teacher group and the second scale was for the priority each teacher group believed beginning teachers should give the selected teacher roles. Chi-square was used to analyze the data.

Comparison of the priorities beginning teachers gave with the priorities they perceived should be given revealed that: (1) No conflict existed in the teacher roles of Utilizer of educational data, Contributor to profession and Contributor to society. Significantly higher priority was perceived desirable for the teacher roles of: Provider of organized, systematic instruction for high school students; Provider of organized, systematic instruction for young and adult farmer groups; Provider of individualized instruction; Developer of student leadership and Contributor to self-development. Significantly lower priority was perceived desirable for the teacher roles of Counselor and Initiator of change.

Comparison of the priority beginning teachers gave with the priority experienced teachers expected of beginning teachers revealed that: (1) Each teacher group perceived similarly the role of "Utilizer of educational data," (2) Beginning teachers gave higher priority to "initiator of change" while the expectation of experienced teachers was higher for the following teacher roles:

1. Contributor to profession
2. Contributor to society
3. Provider of organized, systematic instruction for high school students
4. Provider of organized, systematic instruction for young and adult farmer groups

5. Provider of individualized instruction
6. Developer of student leadership
7. Contributor of self development
8. Counselor

Professional Education Competencies Needed by Vocational Teachers in Michigan

Drake (1962) determined the professional roles expected of vocational agriculture teachers in Michigan as perceived by school superintendents, teachers of vocational agriculture, teacher educators and state supervisors in agricultural education. He identified consensus on specific activities. He also identified the relationships between perceptions of role expectations and selected background variables of superintendents and teachers of vocational agriculture. A list of 102 role definitional activities of the teachers of agriculture was prepared in the form of a perception-expectation questionnaire. These role definitional activities on the questionnaire were classified into eight role areas. The respondents expressed their perceived expectations along a five point scale. Drake found that both the teachers and superintendents perceived "Directing the Program of Young Farmer Education" and "Improving the Environment of Farm People" as having low relative importance. The role areas of (a) participating in the professional work of the school, (b) guiding

and counseling, and (c) working as a member of the teaching profession were perceived by both teachers and superintendents as having relative importance.

Schmitt (1971) studied the problems encountered as a result of the recruitment of vocational and technical instructors directly from business, industry, health and public service occupations to serve as part time instructors in selected Michigan Community colleges. The major problem identified was that the recruited instructors possessed high competence in technical subject matter but lacked professional teacher preparation or teaching experience. He gathered data by means of individual interviews with 21 part time instructors and 20 of their immediate supervisors. Additional data concerning the instructors were gathered from 473 students by means of a structured student rating form. The findings related to the supervisor's perception of part time instructors' problems were:

1. Methods and procedures in selecting and organizing course material;
2. Methods and procedures in grading and evaluating students;
3. Skill in developing test material; and
4. Selecting, designing and using teaching aid and related materials.

The problems as perceived by a majority of the part-time instructors were:

1. Lack of materials such as course outlines, plans, and faculty handbook which should be furnished upon appointment;
2. Self-evaluation of one's effectiveness as a teacher;
3. Adopting instruction to individual differences;
4. Determining the various competencies required of graduates in one's subject area;
5. Keeping abreast of current ideas and trends in one's occupational area; and
6. Developing satisfactory tests and examinations.

The need for a more comprehensive, coordinated plan of vocational-technical education personnel development for Michigan came into sharp focus in the late 1960's (Ferns, 1971). This need was generated by the concerns of teacher educators, school administrators and state office personnel on a necessity for joint action if an adequate supply of personnel was to be available to operate Michigan's expanding occupational system. In early 1969, the teacher education contact persons (a group consisting of one appointed representative from each of eight State-supported universities and colleges involved in vocational-technical teacher education in conjunction with Michigan Department of Education, Vocational-Technical Education Service) established

guidelines for a comprehensive study of the professional development needs in the 1970's. Since then some research has been conducted on certain aspects of professional development needs of vocational and technical education personnel in Michigan.

Ferns (1971) conducted a study of Michigan's vocational-technical education personnel development needs for the period of 1971-1975. Phase I of the study focused on determining the personnel development needs, defining problems and recommending solutions. Phase II dealt with the preparation of an actual State plan for personnel development. In the report of the study, the outline of a unique Michigan plan for coordinating the development of an adequate supply of vocational-technical education personnel was presented. Many alternatives and recommendations for dealing with numerous facets of personnel development were offered for the primary attention of teacher educators, state office personnel, school and college administrators, and leaders of professional organizations. The report from the study was intended to be beneficial to those who wanted to better understand the problems of vocational-technical personnel development in Michigan, and who desired to take action to improve the delivery systems through the subsequent development of an effective, viable, coordinated statewide plan.

Garner (1974) focused his study on the identification of professional competencies which majors in agriculture and natural resources education should have developed prior to student teaching. A checklist of competencies was prepared as a result of the interviews with four supervising teachers. Twenty-seven vocational agriculture teachers who had served as supervising teachers before were asked to rank the degrees of students' need for mastery of each competency on the checklist. The analysis of the 20 respondents indicated a great need for student teachers to develop several competencies prior to their field work. Nine of the highly rated competencies were: Instructional planning, Instructional materials and resources, conducting instruction, supervised occupational experience programs, working with FFA, evaluating instructions, counseling, maintaining community relations and maintaining a professional role.

Ferns (1978) also reported another State-wide staff development pilot project which was of significance to the professional personnel of Michigan area vocational centers. The project also dealt with identification of staff development needs and the formulation of plans for meeting those needs. The focus was on updating and upgrading occupational competencies. The 850 teachers

included in the study were asked to identify knowledge and skills in their specific occupational field that they were interested in improving through training and experience. The areas identified by the respondents served as a basis for organizing technical seminars, workshops and short courses for the teachers.

As part of an experimental program conducted by Moore (1979), the professional and technical needs of new and returning Agriculture and Natural Resource Education (ANRE) teachers in Michigan were identified. The population of this study included the 39 new and returning ANRE teachers who were teaching in high schools and area vocational centers in Michigan during the 1978-79 school year. Data were collected through mail questionnaires from the teachers. The survey instrument developed by Dr. George Ferns at Michigan State University was adapted for data collection. The questionnaire consisted of five sections as follows:

1. respondent identification/characteristics,
2. immediate professional education related problems,
3. professional education competency needs,
4. contemporary topics (emerging topics of concern in vocational education)
5. immediate technical competency needs.

The instrument was reviewed by the Agribusiness and Natural Resource Education faculty at Michigan State University and agricultural education consultants from the Michigan Department of Education. Finally, the instrument was pilot tested, revised and administered to the teachers. The professional education competencies which were rated "medium" or higher relative to "need to update or further improve" were as follows:

1. Develop long-range plans for vocational agriculture programs
2. Assist students in developing self-discipline
3. Plan and direct industrial instructional program
4. Evaluate the effectiveness of instruction
5. Organize, manage and maintain vocational laboratory/classroom facilities
6. Develop vocational education program goals and objectives
7. Evaluate the vocational program
8. Prepare teacher-made instructional materials
9. Direct students in instructing other students
10. Prepare and utilize instructional sheets
11. Conduct a student follow-up study
12. Develop self-contained instructional modules
13. Establish performance standards for students
14. Develop student performance objectives
15. Provide instruction for gifted students

16. Assess student attitudes
17. Purchase supplies and equipment (specifications and bids)
18. Provide information on educational and career opportunities
19. Assist students in applying for employment or further education
20. Establish and maintain a student vocational organization

Diffusion of Educational Innovations

An innovation can be defined as a change which represents something new to the people involved in the change process. In this study, the researcher made some recommendations on the inservice education training programs for the Michigan vocational agriculture teachers. These recommendations were based on a combination of the self-perceived professional education competencies needed by the teachers and theoretical knowledge. Some research done by other people as well as articles, journals and books written on diffusion of innovations provided useful theoretical framework. Such literature reviews provided information on the roles the teachers could play in implementing innovations and some of the strategies and tactics to use in implementing innovations.

Blanzy (1974) stressed that education has more to be concerned with than just budgets and material resources. Human beings are the most important elements of the educational system. They are the elements of the system that determine the goals, and unless they perceive the goals as desirable or worthy of action, any attempt at change is certain to be abortive. Unless their needs are commensurate with the goals to be met by the intended change, they will view the change as an imposition upon them and a condemnation of their individual values.

Helsel (1972) emphasized the important role the classroom teacher could play in implementing an innovation. According to him, much of the impetus for change in educational organizations stems from external sources. The administrators are crucial in introducing innovations at the local level. The superintendent, by virtue of his hierarchical position, has the authority to adopt change or to maintain the status quo. At the building level, principals are ordinarily responsible for the logistical problems associated with the diffusion of innovations. Yet, administrators do rely on the classroom teacher to implement innovations. The classroom teacher is capable of exerting considerable control over the destiny

of an innovation. Teachers can enthusiastically accept change and work hard to promote its implementation, they can display apathetic indifference to a new idea and even sabotage an innovation if they are not convinced of its utility or they can refuse to use an innovation.

Dennis Adams (1974) also stated:

"New methods and innovations are bound to fail if the teachers' attitude is not taken into account. More changes have been attempted in education in the past decade than in past century. Unfortunately most efforts have not moved very far beyond the organizational stage. In spite of the best of intentions new ideas have rarely had much lasting effect on how children learn. A number of recent studies indicate that the main reason actual changes in children's learning have been so slow has to do with one factor--the classroom teacher."

The literature on cognitive dissonance lends support to the notion that mandates from above are not sufficient to bring about change and also supports that self-direction is of crucial importance in attitude change. The implication is that change increases and is more permanent when the person feels that he has freely chosen to alter his point of view. Adams (1974) further reported that it had been found in an inservice workshop that confidence, trust, support and personal experiences play an important role in an individual teacher's ability to decide to assume a new attitude toward learning and to experiment with new ideas. He also found that a very important ingredient to successful teaching was the teacher's own frame of reference, that is--the manner in which

a teacher perceives himself is very important. In addition to inner supports that help individual teachers to carry through change it has been found that support from colleagues and administrators can facilitate a teacher's change process. The advantages of this type of support was observed by Adams when teachers and administrators from the same school enrolled in a workshop together and experienced the process co-operatively.

Zaltman and Duncan (1977) also suggested that in order to have effective educational innovation, there should be top level support in the system for the proposed change or innovation otherwise resistance will be encountered. The system should also try to provide rewards, that is-- incentives to participants for adopting the change or innovation. The incentive should be attractive to the participants as a way of reducing their resistance.

Havelock (1973) was of the opinion that diffusion of an innovation begins with the acceptance of the idea by a few key members of a community. According to him, a chain of reactions seems to be generated once this "critical mass" of key individuals has formed, and there is a rapid upswing in the rate of acceptance until a large majority has been won over.

Atherton (1970) in his article on Change agents for Agricultural Education stated that teacher educators

and supervisors are in a position of responsibility and opportunity when it comes to fostering change and to directing the reconstruction of modifications currently in process. As leaders on the state scene they have not only a privilege but a mandate to fulfill the role of change agents for agricultural education. He also stressed that agricultural educators should realize that bringing about modification requires the efforts of a number of persons and that one individual seldom has the intellect, insight, personality or energy to be all things for all people in all situations. Atherton further made the following suggestions for implementing new directions in agricultural education:

1. Involve those concerned in the basic planning for change because people are much more concerned with something they realize is meant for them.
2. Assist persons to identify their concerns and allow them to voice these concerns freely so that they may evolve procedures for resolving these matters.
3. Consider the group's mode of thinking, feeling and acting. Each group has some distinct mannerisms, codes and practices and one may find acceptance difficult if one fails to observe this.

4. Limit the changes to a few essential ones. Concentrate on the essential otherwise the group become so involved in the trivial that the major elements are overlooked.

Havelock (1973) also made many suggestions on implementing an innovation among which are:

1. The change agent should have the knowledge of the group for whom the innovation is planned.

2. The change agent should use his knowledge of the group to plan and carry out an effective strategy for gaining group acceptance.

3. The strategy should be adapted to the specific situational factors of time, place and circumstances. For example the kind of tactics that can be employed in teaching a course or conducting a weekend workshop may be inappropriate for a one-hour slot in a convention program.

4. The relevant facts about the innovation must be conveyed to the relevant audiences clearly and accurately since the key to success of the change effort lies in the effectiveness with which the new ideas are communicated.

Blanzky (1974) in his article on a change system for education, emphasized that once an innovation has been introduced, it requires further attention in order

to be successful. The tendency is to go back to the old ways. Consequently, maintenance and feedback are necessary. Teachers have to be trained according to the technological requirements of the innovation as well as the psychological need of it. The teachers must not only develop the technical competencies to employ the innovation but must be allowed to provide feedback as to its use and effectiveness. Their comments and suggestions should be carefully considered in order that necessary modifications can be implemented. Blanzky further stated that teachers have some of the following characteristics which should be considered in preparing and installing innovations:

1. They are rational beings who can be convinced by data, but data alone are not sufficient.
2. Since change is being considered, it is reasonable to assume that the teachers are prone to change and will need and welcome workshops and inservice training.

Rogers and Shoemaker (1971) described five different attributes of innovations and how an individual's perception of these characteristics are predictive of the rate of adoption. These five attributes of innovations are:

- (1) relative advantage, (2) compatibility, (3) complexity,
- (4) triability and (5) observability.

Relative advantage was described as the degree to which an innovation is perceived as better than the idea it supersedes. An innovation perceived by the people to whom it is introduced as being of relative advantage will be adopted at a faster rate.

Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of the receivers of the innovation. The more an innovation is perceived as compatible by its receivers, the faster the rate of its adoption.

Complexibility is the degree to which an innovation is perceived as relatively difficult to understand and use. The more the complexity of an innovation to its receivers the slower the rate of its adoption.

Triability is the degree to which an innovation may be experimented with on a limited basis. If an innovation is easily triable the receivers are likely to adopt it at a fast rate.

Observability is the degree to which the results of an innovation are visible to others. The more the results of an innovation are easily observable, the faster the rate of its adoption by the receivers.

The researcher supports Rogers' and Shoemakers view that it is important to be aware of all these factors in planning and implementing an innovation.

Who Should Assess Teacher's Needs?

Most teachers express a desire to use self assessment for the following reasons:

1. They hypothesize that they are not likely to change their performance unless they see a discrepancy between what they want to achieve and what they are actually achieving.
2. They feel that they know better than any one else about their particular teaching situation.

McNeil and Popham (1973) pointed out a tendency for teachers to overrate themselves when using self assessment. They also stated that most teachers seem to criticize the superficial aspects of their teaching, personal mannerisms, appearance, etc. rather than the relevant aspects of their work. Some researchers, however, have found self-evaluation to be a reliable and effective method of determining competencies and needs (Price, 1960; Stanley, 1967; Crisp, 1968). Edelfelt (1978) also reported that many people claim inservice education should address a problem or deficiency perceived by teachers themselves in order to be meaningful to the teachers.

Other researchers and those who attempted to project what a teacher should be, usually feel that they know more about the role of a teacher. Inservice teachers,

however, are not likely to be willing to have someone else analyze the teaching function, and then have the administration hold them responsible for these functions. It has been found that teachers are willing to listen to the advice of experts, but they tend to reserve the final decisions for themselves (Shearron, 1974). It is therefore important that teachers should be given a high degree of responsibility for determining their professional education competency needs.

Summary

This review of literature provided the researcher with the following information:

- a. There was a limited amount of up-to-date information on the inservice education needs of all the vocational agriculture teachers in Michigan.
- b. The methods that can be used to conduct survey research to determine the professional education competencies needed by the vocational agriculture teachers.
- c. The list of competencies that several researchers in agricultural education reported as important in planning and implementing effective vocational agriculture programs.

- d. Some factors to consider in the diffusion of innovations so as to provide effective inservice education training programs for the teachers.

Research Hypotheses

The following alternative hypotheses and the corresponding null hypotheses were tested as derived from the review of literature:

Hypothesis 1:

H1: There will be a relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the types of school where they teach. High school teachers will perceive a higher need to update in each competency than area center teachers.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and the types of school where they teach.

Hypothesis 2:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and their age groups. Younger teachers (40 years and under) will

perceive a higher need to update in each competency than older teachers (above 40 years).

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and their age groups.

Hypothesis 3:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and their major at the time of graduation from college. Teachers who did not major in Agricultural Education will perceive a higher need to update in each competency than teachers who had a major in Agricultural education.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and their major at the time of graduation from college.

Hypothesis 4:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and the universities from which they graduated. Teachers who were non-MSU graduates will perceive a higher need to update in each competency than teachers who were MSU graduates.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and the universities from which they graduated.

Hypothesis 5:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and enrollment in vocational agriculture in high school. Teachers who were not enrolled in vocational agriculture in high school will perceive a higher need to update in each competency than teachers who were enrolled in vocational agriculture in high school.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and enrollment in vocational agriculture in high school.

Hypothesis 6:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and FFA membership in high school. Teachers who were non-FFA members in high school will perceive a higher need to update in each competency than teachers who were FFA members in high school.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and FFA membership in high school.

Hypothesis 7:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and their educational levels. Teachers who were non-college graduates will perceive a higher need to update in each competency than teachers who were college graduates.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and their educational levels.

Hypothesis 8:

H1: There will be a relationship between the self-perceived professional education competencies needed by the following five groups of teachers in Michigan:

- a. Annual vocational authorization in agriculture (AVA)
- b. Temporary vocational authorization in agriculture (TVA)
- c. Full vocational authorization in agriculture (FVA)

- d. State secondary provisional certificate with vocational endorsement in agriculture (SSP)
- e. State secondary continuing certificate with vocational endorsement in agriculture (SSC)

Teachers who had no permanent vocational teaching certificates (AVA, FVA, SSP) will perceive a higher need to update in each competency than teachers who had permanent vocational teaching certificates (FVA, SSC).

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers of different vocational teaching certificates.

Hypothesis 9:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and the years of practical work experience before teaching in the areas of agriculture. Teachers with less number of years of practical work experience before teaching in the areas of agriculture (9 years or less) will perceive a higher need to update in each competency than teachers with many years (10 years or more) of practical work experience before teaching in the areas of agriculture.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and the years of practical work experience before teaching in the areas of agriculture.

Hypothesis 10:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and their years of teaching vocational agriculture. Teachers with less than 6 years of teaching vocational agriculture will perceive a higher need to update in each competency than teachers with 6 years or more of teaching vocational agriculture.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and their years of teaching vocational agriculture.

Hypothesis 11:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and their interest in participating in professional education inservice activities in the next two years. Teachers who had interest in participating in professional

education inservice activities in the next two years will perceive a higher need to update in each competency than teachers who had no interest in participating in professional education inservice activities in the next two years.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and their interest in participating in professional education inservice activities in the next two years.

Hypothesis 12:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and the training received in Competency Based Education (CBE). Teachers who had not received training in CBE will perceive a higher need to update in each competency than teachers who had received training in CBE.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and the training received in CBE.

Hypothesis 13:

H1: There will be a relationship between the self-perceived professional education competencies needed by the teachers and where they received their CBE training. Teachers who received their CBE training from the local education agencies and other sources will perceive a higher need to update in each competency than teachers who received their CBE training from the university.

Ho: There will be no relationship between the self-perceived professional education competencies needed by the teachers and where they received their CBE training.

CHAPTER III

DESIGN OF THE STUDY

The primary purpose of this study was to analyze the professional education competency needs and related information from vocational agriculture teachers in Michigan. A mail questionnaire was used to collect the data from the teachers. Cover letters accompanied the mail questionnaires. The cover letters explained the purpose of the study and requested for participation and cooperation of every teacher involved in the study (See Appendix D, page 319).

The questionnaire was made up of two parts: Part I of the questionnaire was designed to determine the educational and occupational background information of vocational agriculture teachers in Michigan. This included information on: (1) Name of the school where the teacher taught, (2) Age, (3) Major when graduated from college, (4) University graduated from, (5) Enrollment in vocational agriculture in high school, (6) Membership in the FFA, (7) Level of education completed, (8) Type of vocational teaching certificate currently held, (9) Percentage teaching time in agriculture production, agriculture supplies, agricultural mechanics, agricultural products, ornamental horticulture, agricultural resources, forestry, non-agriculture

classes, (10) Years of practical work experience in areas of agriculture before teaching, (11) Years of teaching vocational agriculture, (12) Interest in participating in professional education inservice activities in the next two years, (13) Training received in Competency Based Education, and (14) From whom the training in Competency Based Education was received. Part II of the questionnaire was designed to identify the teachers' self-perceptions of their need to up-date or further improve in 95 selected professional education competencies. The competency items were divided into the following twelve competency areas.

1. Program Planning, Development and Evaluation
2. Instructional Planning
3. Instructional Execution-Techniques
4. Instructional Execution-Individualizing
5. Instructional Evaluation
6. Instructional Management
7. Guidance and Placement
8. School Community Relations
9. Future Farmers of America (FFA)
10. Professional Role and Development
11. Supervised Occupational Experience
12. Contemporary Topics

The methods used by the researcher in accomplishing the objectives of the study are described in this chapter. It is organized as follows: population, development of the instruments, testing the instruments, administration of questionnaire and data analysis.

Population

The population of this study included all the vocational agriculture teachers in Michigan during the 1979-80 academic year. There were 211 vocational agriculture teachers in Michigan for the 1979-80 academic year as confirmed by Richard Karelse, Consultant, Michigan Department of Education. Questionnaires were mailed to the 211 Michigan vocational agriculture teachers. Ninety-five percent of the instruments were collected from the respondents and ninety-four percent of the instruments were usable.

Development of Instrument

The instrument used in the study was designed to obtain descriptive data needed to fulfill the objectives of the study. Part I of the survey instrument was made up of 16 questions. These 16 questions were developed to obtain some information on the educational and occupational background of the Michigan vocational agriculture teachers. The development of these questions involved assistance from the researcher's doctoral program committee and the Agriculture and Natural Resource Education faculty, Michigan State University who reviewed the questions for clear understanding and appropriateness.

Part II of the survey instrument was made up of a list of 95 competencies which several professionals in

Agricultural Education believe are important in planning and implementing effective vocational agriculture programs. The items on the list of competencies in the survey instrument for this study were composed from related studies. Liberal use was made of the procedures and techniques of some researchers in these areas. Some of the items were selected from the list of 384 competencies in the study by Cotrell, et al. (1972). Some additional competencies were selected from the following sources:

1. Guidelines and Standards for Vocational Agriculture/Agribusiness Education in Michigan (MDE, 1979).
2. Survey instrument developed by Dr. George Ferns at Michigan State University. Dr. Ferns developed the competencies in his survey instrument from 384 competencies of Cotrell, et al. (1972). He used the survey instrument to collect data from 130 teachers of four Career Education Planning Districts in Michigan in March 1978. These four Career PLanning Districts were Charlevoix-Emmet, Traverse Bay, Mason and Wexford-Missaukee.
3. Survey instrument developed by Dr. Eddie Moore at Ohio State University in 1974. This survey instrument was field tested and had been used

to collect data from 555 secondary vocational agriculture teachers in Ohio.

Testing the Instrument

The questionnaire as a data collecting instrument was evaluated by the four members of the researcher's doctoral program committee in February 1980. The list of professional education competencies on the survey instrument was further reviewed and adapted to agricultural education in Michigan by the Faculty of Agricultural and Natural Resource Education, Michigan State University. The instrument was then field tested with six graduate students of Agricultural and Natural Resource Education, Michigan State University, plus two members of staff of the Michigan Department of Education. They were required to read through the instrument and make suggestions for clarification of any ambiguous items. The suggested changes were then made on the instrument before the questionnaires were administered to the teachers involved in the study.

Method of Rating

For Part I of the survey instrument, all the teachers were requested to respond to each item by writing in the required information or checking the appropriate response(s) for each question.

In Part II of the survey instrument, all the teachers were requested to rate each of the 95 competency items

according to the need to update or further improve in each of the items to enable them to conduct successful vocational agriculture programs.

The following are the rating scales used in Part II of the survey instrument.

<u>SCALE</u>	<u>NEED TO UPDATE OR FURTHER IMPROVE</u>
0 represents	Does Not Apply
1 represents	None
2 represents	Low
3 represents	Medium
4 represents	High
5 represents	Very High

Administration of Questionnaires

Questionnaires were mailed to all the 211 vocational agriculture teachers in Michigan on March 17, 1980. A cover letter and a self-addressed, stamped envelope was included in each mailing (See Appendix D, page 319). A second questionnaire with a reminder letter and a self-addressed, stamped envelope was mailed on April 2, 1980 to the 97 teachers who did not respond to the first questionnaire (See Appendix E, page 320). A third questionnaire with a cover letter and a self-addressed envelope was mailed on April 21, 1980 to the 47 teachers who did not respond to the two questionnaires. (See Appendix F, page 321). Finally, telephone calls were made on May 6, 1980 to the 25 teachers who failed to respond to the three questionnaires.

The first response yielded 54%, the second 24%, the third 10% and the fourth 7%, producing an overall response of 95%.

Data Analysis

The data were analyzed by using the Statistical Package for the Social Sciences (SPSS) at the Michigan State University Computer Center. Mean scores were calculated to determine the need to improve or update in the professional education competency items in Part II of the survey instruments as perceived by the vocational agriculture teachers. The mean score ratings that fell within an inservice need indicator range of 3.0 to 5.0 for each competency were considered the inservice competency needs of the teachers (Note: 5.0 represented very high need to improve or update in each competency).

Chi-square test was used in the data analysis to enable the researcher to determine the relationships between independent variables and the dependent variables. The independent variables in this study were the educational and occupational background information of the teachers and the dependent variables were the competency items listed in Part II of the survey instrument. The hypotheses were tested at the .05 level of significance.

The following criteria were used in determining the degree of relationship of the characteristics of the teachers and their self-perceived professional education competency needs:

1. From the summary of the chi-square test results of the frequencies of rating of any of the inservice competency needs of the teachers, any chi-square result that was below .05 level of significance was used as the criterion for rejecting the null hypothesis for that teacher characteristic and the competency tested. For example, if the null hypothesis was tested for the type of school where the teachers taught and competency 45 -- Assist students in developing self-discipline; and the chi-square result was below .05 level of significance, then the null hypothesis which stated that there was no significant relationship between the type of school where the teacher taught as related to competency 45 was rejected. It was then concluded that there was a significant relationship between the type of school where the teachers taught and competency 45 -- Assist students in developing self-discipline.
2. From the cross tabulations of the frequencies of the ratings of the inservice competency needs of the teachers, the percentage of the teachers within each teacher characteristic that rated the competency 3.00 and above was calculated. For example, 120 high school teachers (77 percent) rated competency 45 -- Assist students in developing self-

discipline; 3.00 and above while only 28 area center teachers (65 percent) rated that same competency, 3.00 and above. Information regarding this example is shown in Table 1. The comparison of the percentage of teachers from the different schools derived from these calculations was then used as a basis for concluding that teachers from one school type needed to update in that particular competency more than teachers from the other school type. Thus in this particular example it was concluded that high school teachers expressed a higher need to update or further improve in competency 45 -- Assist students in developing self-discipline, than the area center teachers.

The same procedure was followed in determining the teacher group within each of the characteristics of the teachers that expressed a higher need to update or further improve in any competency that showed a significant relationship with that teacher characteristic in the chi-square test result.

TABLE 1 CROSS TABULATIONS OF FREQUENCIES OF THE RATING OF COMPETENCY 45 (ASSIST STUDENTS IN DEVELOPING SELF-DISCIPLINE) BY TEACHERS OF DIFFERENT TYPES OF SCHOOL

SCHOOL NAME	COUNT ROW PCT COL PCT TOT PCT	DOES NOT APPLY	NONE	LOW	MEDIUM	HIGH	V. HIGH	ROW TOTAL
		0	1	2	3	4	5	
AREA CENTER		2.0	5.0	8.0	4.0	15.0	9.0	43.0
		4.7	11.6	18.6	9.3	34.9	20.9	21.6
		50.0	31.3	25.8	6.8	26.3	28.1	
		1.0	2.5	4.0	2.0	7.5	4.5	
HIGH SCHOOL		2.0	11.0	23.0	55.0	42.0	23.0	156.0
		1.3	7.1	14.7	35.3	26.9	14.7	78.4
		50.0	68.8	74.2	93.2	73.7	71.9	
		1.0	5.5	11.6	27.6	21.1	11.6	
COLUMN TOTAL		4.0	16.0	31.0	59.0	57.0	32.0	199.0
		2.0	8.0	15.6	29.6	28.6	16.1	100.0

RAW CHI-SQUARE = 12.311

5 DEGREES OF FREEDOM

SIGNIFICANCE = .031

CHAPTER IV

EDUCATIONAL AND OCCUPATIONAL CHARACTERISTICS OF MICHIGAN VOCATIONAL AGRICULTURE TEACHERS

In this chapter, the results of the analysis of the data obtained from the 16 questions in Part I of the survey instrument are discussed. The basic objective for this portion of the study was to ascertain the educational and occupational backgrounds of the vocational agriculture teachers in Michigan. Descriptive statistics were used to summarize the responses for the various variables covered in Part I of the survey instrument.

Distribution of Teachers by School

One of the factors to consider in planning and conducting inservice education programs for vocational agriculture teachers in Michigan is the type of school where the teachers are employed. The two types of school involved in this study were the Area Vocational Centers and High Schools. The teachers were asked in the questionnaire to indicate the type of school in which they were employed.

As indicated by the data in Table 2, out of the 199 respondents, 43 teachers (22 percent) were employed in the Area Vocational Centers. A majority of the teachers (78 percent) were employed in the High Schools.

**TABLE 2 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS BY THE TYPES OF SCHOOL**

<u>School Type</u>	<u>TEACHERS</u>	
	<u>Number</u>	<u>Percent</u>
Area Vocational Centers	43	21.6
High Schools	<u>156</u>	<u>78.4</u>
TOTAL	199	100.0

Distribution of Teachers by Age

As indicated by the data in Table 3, the largest age group was the 31-40 year old group. About 70 percent of the teachers were 40 years of age or less.

**TABLE 3 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS BY AGE**

<u>Age Group</u>	<u>Number of Teachers</u>	<u>Percent</u>
Less 25 years	29	14.6
26-30	37	18.6
31-40	74	37.2
41-50	32	16.1
51-60	24	12.1
Over 60	<u>3</u>	<u>1.5</u>
TOTAL	199	100.0

Major Field of Educational Preparation

The data in Table 4 illustrate that 143 teachers (72 percent) had Agricultural Education as their major, while 52 teachers (26 percent) were Non-Agricultural Education majors.

TABLE 4 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE TEACHERS BY THEIR MAJOR AT GRADUATION FROM COLLEGE

Major	Teachers	
	Number	Percent
Agricultural Education	143	71.9
Non-Agricultural Education	52	26.1
No Response	<u>4</u>	<u>2.0</u>
TOTAL	199	100.0

Proportion of Teachers That Were Michigan State University Graduates

The findings reported in Table 5 show that the majority (82 percent) of the teachers graduated from Michigan State University while 17 percent of the teachers were non-Michigan State University graduates.

**TABLE 5 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS BY THE UNIVERSITY FROM WHICH THEY
GRADUATED**

University	Teachers	
	Number	Percent
Michigan State University Graduates	163	81.9
Non-Michigan State University Graduates	31	16.6
No response	<u>5</u>	<u>2.5</u>
TOTAL	199	100.0

Enrollment in Vocational Agriculture in High School

One hundred and twenty-four (62 percent) of the teachers indicated that they were enrolled in vocational agriculture in high school. Seventy-five (38 percent) of the teachers, however, were not enrolled in vocational agriculture in high school. (See Table 6)

TABLE 6 NUMBER AND PERCENT OF TEACHERS THAT ENROLLED
IN VOCATIONAL AGRICULTURE IN HIGH SCHOOL

Enrollment in Vocational Agriculture	Teachers	
	Number	Percent
Enrolled	124	62.3
Not Enrolled	<u>75</u>	<u>37.7</u>
TOTAL	199	100.0

FFA Membership in High School

The data in Table 7 show that 119 (60 percent) of the teachers were FFA members in high school. Seventy-eight teachers (39 percent) were non-FFA members in high school.

TABLE 7 NUMBER AND PERCENT OF TEACHERS THAT WERE FFA
MEMBERS IN HIGH SCHOOL

FFA Membership in High School	Teachers	
	Number	Percent
FFA Member	119	59.8
Non-FFA Member	78	39.2
No response	<u>2</u>	<u>1.0</u>
TOTAL	199	100.0

Educational Level

The results presented in Table 8 indicate that 50 percent of the teachers possessed a Master's degree. Eighty-seven teachers (44 percent) possessed a Bachelor's degree. One hundred and ninety-two teachers (97 percent of the teachers) possessed the minimum of a Bachelor's degree. Seven teachers (4 percent) possessed less than a Bachelor's degree.

TABLE 8 EDUCATIONAL BACKGROUND OF MICHIGAN VOCATIONAL AGRICULTURE TEACHERS

Degree Completed	Teachers	
	Number	Percent
High School	4	2.0
Junior/Community College	3	1.5
Bachelor's	87	43.7
Master's	100	50.3
Specialist's	4	2.0
Doctoral	1	0.5
TOTAL	199	100.0

Vocational Teaching Certificates

A summary of the vocational teaching certificates possessed by the teachers is shown in Table 9. Vocational Endorsement of Secondary Continuing Certificate was the most frequently reported vocational teaching certificate possessed by the teachers. One hundred and two teachers (51 percent) reported that they possessed

this certificate. This is the highest vocational teaching certificate awarded to the vocational agriculture teachers. This suggests that a majority of the teachers have reasonable length of teaching experience.

Nineteen teachers (10 percent) possessed Annual Vocational Authorization, fourteen teachers (7 percent) possessed Temporary Vocational Authorization, fifteen teachers (8 percent) possessed Full Vocational Authorization while the remaining forty-nine teachers (25 percent) possessed Vocational Endorsement of Secondary Provisional Certificate.

TABLE 9 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE TEACHERS BY VOCATIONAL TEACHING CERTIFICATES HELD

Vocational Teaching Certificate in Agriculture Held	Teachers	
	Number	Percent
Annual Vocational Authorization	19	9.5
Temporary Vocational Authorization	14	7.1
Full Vocational Authorization	15	7.5
Vocational Endorsement of Secondary Provisional Certificate	49	24.6
Vocational Endorsement of Secondary Continuing Certificate	<u>102</u>	<u>51.3</u>
TOTAL	199	100.0

Subject Matter Area Taught

The data in Table 10 show the distribution of subject matter areas taught by the Michigan vocational agriculture teachers employed in the Area Vocational Centers and those employed in the High Schools and the percentage of their teaching time spent in any of those subject matter areas.

The most frequent subject matter areas taught by teachers in both types of school were as follows in order listed:

1. Agricultural production
2. Ornamental horticulture
3. Non-agricultural classes
4. Agricultural mechanics
5. Agricultural resources
6. Forestry
7. Agricultural supplies
8. Agricultural products

However, when the percent teaching time was analyzed separately for each of the school type, the subject matter areas most frequently taught were as follows in order listed:

A. Area Vocational Centers

1. Ornamental horticulture
2. Agricultural mechanics

**TABLE 10 MEAN PERCENTAGE TEACHING TIME SPENT BY MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS IN VARIOUS SUBJECT MATTER AREAS**

Subject Matter Areas^a	Type of School	Number of Teachers Involved	Mean Percentage Teaching Time
Agricultural Production	Area Vocational Centers	11	72.27
	High Schools	138	62.80
	Both Schools	149	63.50
Ornamental Horticulture	Area Vocational Centers	24	95.50
	High Schools	49	33.96
	Both Schools	73	54.19
Non-Agricultural Classes	Area Vocational Centers	5	37.40
	High Schools	70	33.21
	Both Schools	75	33.49
Agricultural Mechanics	Area Vocational Centers	16	52.44
	High Schools	54	26.11
	Both Schools	70	32.13
Agricultural Resources	Area Vocational Centers	3	37.00
	High Schools	29	26.55
	Both Schools	32	27.53

TABLE 10 (Cont'd.)

Subject Matter Areas ^a	Type of School	Number of Teachers Involved	Mean Percentage Teaching Time
Forestry	Area Vocational Centers	5	7.00
	High Schools	18	20.72
	Both Schools	23	17.74
Agricultural Supplies	Area Vocational Centers	4	7.50
	High Schools	5	9.40
	Both Schools	9	8.56
Agricultural Products	Area Vocational Centers	2	5.50
	High Schools	5	11.00
	Both Schools	7	9.43

^aTeachers indicated teaching one or more subject matter areas.

3. Agricultural production
4. Non-agricultural classes
5. Agricultural resources
6. Forestry
7. Agricultural supplies
8. Agricultural products

B. High Schools

1. Agricultural production
2. Non-agricultural classes
3. Ornamental horticulture
4. Agricultural mechanics
5. Agricultural resources
6. Forestry
7. Agricultural products
8. Agricultural supplies

Practical Work Experience

A summary of the practical work experience obtained by the teachers before teaching is shown in Table 11. A majority of the teachers (52 percent) had ten years or more of practical work experience before teaching. Fifty-eight teachers (29 percent) had four to nine years of practical work experience. Thirty-seven teachers (19 percent) had less than three years of practical work experience.

**TABLE 11 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS BY YEARS OF PRACTICAL WORK EXPERIENCE
IN AGRICULTURE BEFORE TEACHING**

Years of Practical Work Experience	Teachers	
	Number	Percent
Less 1 year	2	1.0
1-3 years	35	17.6
4-9 years	58	29.1
10 years or more	103	51.8
No response	<u>1</u>	<u>0.5</u>
TOTAL	199	100.0

Teaching Experience

The data in Table 12 show the number of years of teaching experience in vocational agriculture by the teachers. One hundred and twenty-four (62 percent) of the teachers had more than 6 years experience in teaching vocational agriculture while seventy-five teachers (38 percent) had 6 years or less of teaching experience in teaching vocational agriculture. The mean number of years of teaching experience in vocational agriculture for all the teacher was 11 years.

TABLE 12 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS BY YEARS OF TEACHING EXPERIENCE IN
VOCATIONAL AGRICULTURE.

Years of Experience	Teachers	
	Number	Percent
6 years or less	75	37.7
Above 6 years	<u>124</u>	<u>62.3</u>
TOTAL	199	100.0
Mean 11 years		

Interest in Professional Education Inservice Activities
in the Next Two Years

The data in Table 13 show the interests of the teachers to participate in professional education inservice activities in the next two years. A majority of the teachers expressed interest for participation in such professional education inservice activities. One hundred and seventy-one teachers (86 percent) indicated interest in inservice while twenty-three (12 percent) indicated no interest.

**TABLE 13 INTEREST OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS TO PARTICIPATE IN PROFESSIONAL EDU-
CATION INSERVICE ACTIVITIES IN THE NEXT TWO
YEARS**

Responses	Teachers	
	Number	Percent
Interest in Inservice	171	85.9
No Interest in Inservice	23	11.6
No Response	<u>5</u>	<u>2.5</u>
TOTAL	199	100.0

Training in Competency Based Education

As indicated in Table 14, 149 teachers (75 percent) had training in Competency Based Education (CBE) while 48 teachers (24 percent) had no training in CBE.

**TABLE 14 DISTRIBUTION OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS BY THEIR RESPONSES TO TRAINING RECEIVED
IN COMPETENCY BASED EDUCATION (CBE)**

Training in CBE	Teachers	
	Number	Percent
Training in CBE	149	74.9
No Training in CBE	48	24.1
No Response	<u>2</u>	<u>1.0</u>
TOTAL	199	100.0

Additional information on where the teachers received training in CBE are provided in Table 15.

TABLE 15 MICHIGAN VOCATIONAL AGRICULTURE TEACHERS AND WHERE THEY RECEIVED TRAINING IN COMPETENCY BASED EDUCATION (CBE)

Location of CBE Training	Teachers	
	Number	Percent
University	73	36.7
Local Education Agency	57	28.6
Other Locations	17	8.6
No Responses	<u>52</u>	<u>26.1</u>
TOTAL	199	100.0

Universities and local education agencies were the main organizations that provided the CBE training for the teachers. Universities offered CBE training to 37 percent of the teachers while the Local Education Agencies offered the CBE training to 29 percent of the teachers. Less than 9 percent of the teachers received CBE training from other sources. Twenty six percent of the teachers did not respond to the question on the sources of CBE training.

CHAPTER V

PROFESSIONAL EDUCATION COMPETENCIES NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS

One of the major objectives of this study was to determine the self-perceived professional competencies needed by the vocational agriculture teachers in Michigan. To achieve this objective, mean score ratings were calculated to determine the need to up-date or further improve on any of the 95 professional education competency items in Part II of the survey instrument as perceived by the vocational agriculture teachers. The following rating scale was used:

<u>Scale</u>	<u>Need to Up-date or further improve</u>
0	represents does not apply
1	represents none
2	represents low
3	represents medium
4	represents high
5	represents very high

An inservice need indicator of 3.00 and above was chosen by the researcher to determine the professional education competencies needed by the vocational agriculture teachers. Therefore, any competency with a mean

score that fell between 3.00 and 5.00 was considered by the researcher as being needed by the teachers and could be considered for planning programs for inservice training by teacher educators.

Chi-square statistics were used to determine if there were relationships between the educational and occupational background of the teachers obtained from Part I of the survey instrument and the competency needs of the teachers obtained from Part II of the survey instrument. Each hypothesis involved was tested at .05 level of probability.

The responses of the vocational agriculture teachers on the professional education competencies are presented in this chapter in the following order:

1. Identification of the top ranked 15 professional education competencies needed by the vocational agriculture teachers to up-date or further improve.
2. Identification of the least ranked 15 professional education competencies needed by the vocational agriculture teachers to up-date or further improve.
3. Identification of the competency areas that are most needed and that are least needed by the vocational agriculture teachers.

4. The competencies needed by vocational agriculture teachers of Area Vocational Centers and High Schools in Michigan.
5. The competencies needed by Michigan vocational agriculture teachers of different age groups.
6. The competencies needed by Michigan vocational agriculture teachers whose major was Agricultural Education and those whose major was not Agricultural Education when they graduated from college.
7. The competencies needed by Michigan State University (MSU) and non-Michigan State University graduate teachers.
8. The competencies needed by Michigan vocational agriculture teachers enrolled and those who were not enrolled in vocational agriculture in high school.
9. The competencies needed by Michigan vocational agriculture teachers who were FFA members or non-FFA members in high school.
10. The competencies needed by Michigan vocational agriculture teachers of various educational levels.
11. The competencies needed by Michigan vocational agriculture teachers of the five different types of vocational teaching certificates in agriculture.

12. Influence of the number of years of practical work experience in areas of agriculture before teaching on the self-perceived competency needs of Michigan vocational agriculture teachers.
13. Influence of the number of years of teaching experience in vocational agriculture on the self-perceived competency needs of Michigan vocational agriculture teachers.
14. The competencies needed by Michigan vocational agriculture teachers who had interest and those who had no interest in participating in professional education inservice activities in the next two years.
15. Influence of training in Competency Based Education (CBE) on the self-perceived competency needs of Michigan vocational agriculture teachers.
16. The results of the Chi-square tests for the thirteen null hypotheses described in Chapter II.

The mean scores of the self-perception of all the vocational agriculture teachers on their need to update or further improve in each of the 95 competencies as arranged in Part II of the survey instrument and these competencies ranked in the order of the mean scores are provided in the Appendix, Tables 45 and 46 respectively.

The Tables of the frequencies and percentages of responses under each rating scale of Part II of the survey instrument for each of the 95 competencies are provided in Appendix, Tables 47 and 48 respectively.

The Tables of the mean scores of the competency area FFA as rated by the teachers of various characteristics: the school where they teach, age, major when they graduated from college, university from where they graduated, enrollment in vocational agriculture in high school, FFA membership in high school and the type of teaching certification are shown in the Appendix, Tables 49 to 55 respectively.

Competencies Most Needed by the Michigan Vocational Agriculture Teachers

The number of professional education competencies with a mean score of three or higher (medium to very high need to update or further improve) were fifteen. These 15 top ranked competencies together with their mean scores and the competency areas involved are shown in Table 16. The highest rated competency, that is: "Knowing legal liability of teachers" had a mean score of 3.3. The other 14 top rated competencies in order of need included the following:

- Assist students in developing self-discipline
- Keep up-to-date professionally

TABLE 16 COMPETENCIES MOST NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS

AREA ^a	COMPETENCIES	RANK (N=199)	MEAN ^b	STANDARD DEVIATION
L	Knowing legal liability of teachers	1	3.306	1.170
E	Assist students in developing self-discipline	2	3.242	1.218
J	Keep up-to-date professionally	3	3.240	1.268
L	Knowing youth labor rules and regulations	4	3.149	1.186
F	Evaluate your instructional effectiveness	5	3.141	1.205
L	Knowing MIOSHA rules and regulations regarding vocational facilities	6	3.130	1.190
K	Maintain adequate records to determine student progress	7	3.108	1.211
B	Determine needs and interests of students	8	3.102	1.035
C	Direct students in applying problem solving-techniques	9	3.082	1.134
H	Obtain feedback about your vocational agricultural programs	10	3.071	1.167
K	Engage students in supervised occupational experiences that are related to their occupational objectives	11	3.071	1.300
A	Evaluate your vocational agriculture program	12	3.060	1.188
A	Develop long-range plans for vocational agriculture programs	13	3.056	1.209
D	Plan and direct individualized instructional program	14	3.051	1.216

TABLE 16 (Cont'd.)

AREA ^a	COMPETENCIES	RANK (N=199)	MEAN ^b	STANDARD DEVIATION
C	Direct student laboratory experience	15	3.046	1.208

^aIndicates competency area: A. Program Planning, Development and Evaluation; B. Instructional Planning; C. Instructional Execution-Techniques; D. Instructional Execution-Individualizing; E. Instructional Management; F. Instructional Evaluation; H. School Community Relations; J. Professional Role and Development; K. Supervised Occupational Experience; L. Contemporary Topics.

^b3.0 and above indicates medium to very high need to up-date or further improve, less than 3 indicates low to no need to up-date or further improve.

Knowing youth labor rules and regulations

Evaluate your instructional effectiveness

Knowing MIOSHA rules and regulations regarding vocational facilities

Maintain adequate records to determine student progress

Determine needs and interests of students

Direct students in applying problem-solving techniques

Obtain feedback about your vocational agriculture programs

Engage students in supervised occupational experiences that are related to their occupational objectives

Evaluate your vocational agriculture program

Develop long-range plans for vocational agriculture program

Plan and direct individualized instructional program

Direct student laboratory experience

Each of the 15 top rated competencies had a mean score falling within a range of 3.3 to 3.0. Each of the following competency areas had at least one competency among the top rated 15 competencies.

Program Planning, Development and Evaluation

Instructional Planning

Instructional Execution-Techniques

Instructional Execution-Individualizing

Instructional Management
Instructional Evaluation
School Community Relations
Professional Role and Development
Supervised Occupational Experience
Contemporary Topics

The two competency areas that did not contribute to the top rated 15 competencies and which had all the competencies under them having a mean score of less than 3.00 were Future Farmers of America (FFA) and Guidance and Placement (Competency areas I & G respectively).

The findings described previously suggest that any inservice training program planned for all the Michigan vocational agriculture teachers as a group should focus more attention on those top ranked 15 competencies identified.

Competencies Least Needed By Michigan Vocational Agriculture Teachers

In order to aid teacher educators in planning an inservice training program for Michigan vocational agriculture teachers, the following 15 competencies that were rated lowest by the respondents and which should receive the least attention in such an inservice training program planning were:

Establish FFA chapter

Develop a personal philosophy concerning FFA

Employ the team teaching approach

Supervise FFA activities

Develop a lesson plan

Gather student data using formal data collection technique

Organize an occupational advisory committee

Conducting group discussions, panel discussions and symposiums

Guide participation in FFA award programs and contests

Gather student data through personal contact

Direct field trips

Providing school-based job placement services

Utilize paraprofessionals effectively

Prepare student FFA members for leadership roles

Assist students in developing and financing a yearly program of activities

The least needed 15 competencies, their ranks, mean scores and the competency areas under which they fall are indicated in Table 17.

Each of the least rated 15 competencies had a mean score falling between 1.2 and 2.4 which are far below the score of 3.00 which represented the inservice need indicator selected by the researcher. It is interesting to note that 100 percent of the competencies listed

**TABLE 17 COMPETENCIES LEAST NEEDED BY MICHIGAN VOCATIONAL
AGRICULTURE TEACHERS**

AREA^a	COMPETENCIES	RANK (N=199)	MEAN^b
I	Establish FFA Chapter	1	1.209
I	Develop a personal philosophy concerning FFA	2	1.939
C	Employ the team teaching approach	3	1.980
I	Supervise FFA activities	4	2.036
B	Develop a lesson plan	5	2.157
G	Gather student data using formal data collection technique	6	2.235
A	Organize an occupational advisory committee	7	2.255
C	Conducting group discussions, panel discussions and symposiums	8	2.274
I	Guide participation in FFA award programs and contests	9	2.294
G	Gather student data through personal contact	10	2.321
C	Direct field trips	11	2.362
L	Providing school-based job placement services	12	2.390
E	Utilize paraprofessionals effectively	13	2.404
I	Prepare student FFA members for leadership roles	14	2.414
I	Assist students in developing and financing a yearly program of activities	15	2.419

TABLE 17 (Cont'd.)

^aIndicates competency area: A. Program Planning, Development and Evaluation; B. Instructional Planning; C. Instructional Execution-Techniques; E. Instructional Management; G. Guidance and Placement; I. Future Farmers of America; L. Contemporary Topics.

^b3.0 and above indicates medium to very high need to update or further improve, less than 3 indicates low to no need to up-date or further improve.

under FFA were among the 15 competencies rated as least needed by all the teachers. FFA is regarded to be important for maintaining a high quality vocational agriculture program by most vocational agriculture teachers (McGhee, 1967) and is listed to be important for leadership development by the Michigan Department of Education in their guidelines and standards for quality vocational programs in agriculture/agribusiness education in Michigan.

This may suggest either that the roles and responsibilities of the vocational agriculture teachers in Michigan are changing or that most of the Michigan vocational agriculture teachers have been adequately exposed to FFA education programs throughout their educational training.

Fifty percent of all the competencies under the competency area: Guidance and Placement were among the 15 least needed competencies. The following competency areas, however, were not included among the 15 least needed competencies:

Instructional Execution-Individualizing

Instructional Evaluation

School Community Relations

Professional Role and Development

Supervised Occupational Experience

Competency Areas Most Needed By The Michigan Vocational
Agriculture Teachers

The data in Table 18 show the overall mean of all the competencies under each competency area and the rank of each competency area. It could be noted that none of the competency area had an overall mean of 3.0 which was selected by the researcher as the inservice need indicator. Since the inservice training programs are usually planned for each competency rather than for any particular competency area, the inservice need indicator of 3.0 selected by the researcher would not be applicable to the overall means of the competency areas.

The top ten ranked competency areas included:

1. Supervised Occupational Experience
2. Professional Role and Development
3. Contemporary Topics
4. Instructional Evaluation
5. School Community Relations
6. Instructional Execution-Individualizing
7. Instructional Management
8. Program Planning, Development and Evaluations
9. Instructional Planning
10. Instructional Execution -- Techniques

TABLE 18 COMPETENCY AREAS MOST NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS

COMPETENCY AREAS	RANK (N=199)	OVERALL MEAN OF COMPETENCIES
Supervised Occupational Experience	1	2.946
Professional Role and Development	2	2.887
Contemporary Topics	3	2.837
Instructional Evaluation	4	2.831
School Community Relations	5	2.818
Instructional Execution- Individualizing	6	2.754
Instructional Management	7	2.752
Program Planning, Development and Evaluation	8	2.690
Instructional Planning	9	2.654
Instructional Execution- Techniques	10	2.602
Guidance and Placement	11	2.574
Future Farmers of America	12	2.052

The 15 most needed competencies by all the Michigan vocational agriculture teachers came from these ten competency areas. It is necessary to note here that the two competency areas: Guidance and Placement and Future Farmers of America (FFA) were still the least ranked or the least needed competency areas by the teachers.

Competencies Needed by Vocational Agriculture Teachers of Area Vocational Centers and High Schools in Michigan

The differences between the competencies needed by Michigan vocational agriculture teachers who were employed in the Area Vocational Centers and those employed in the High Schools during 1979-1980 academic year are presented in Table 19. The mean scores of their need to update or further improve in the 95 selected competencies were compared. It could be noted in Table 19 that teachers of Area Vocational Centers rated 13 competencies 3.0 and above while the High School teachers rated 21 competencies 3.0 and above. Nine out of the 13 competencies that were needed by the teachers of Area Vocational Centers were also needed by the High School teachers. The other four competencies which were reported as needed by the teachers of Area Vocational Centers were the competencies which only the Area Center teachers were required to perform as part of their professional function. These four competencies are as follows:

TABLE 19 MEAN SCORES OF THE COMPETENCIES NEEDED BY VOCATIONAL AGRICULTURE TEACHERS OF AREA VOCATIONAL CENTERS AND HIGH SCHOOLS IN MICHIGAN

Competency No.	Competencies	Types of School	
		Area Center (N=43)	High School (N=156)
8	Develop long-range plans for the vocational agriculture program	3.0	3.1
10	Evaluate your vocational agriculture programs		3.1
11	Determine needs and interests of students		3.2
16	Prepare teacher-made instructional materials	3.0	
22	Direct student laboratory experience	3.1	3.0
23	Direct student in applying problem-solving techniques	3.2	3.1
33	Plan and direct individualized instructional program	3.0	3.1
39	Provide instruction for gifted students	3.0	
45	Assist students in developing self-discipline	3.2	3.3
51	Test student psychomotor (skill) performance	3.0	
52	Assess student attitudes	3.2	
54	Evaluate your instructional effectiveness	3.3	3.1
59	Develop a school community relations plan for your vocational agriculture program		3.1

TABLE 19 (Cont'd.)

Competency No.	Competencies	Types of School	
		Area Center (N=43)	High School (N=156)
60	Give presentations to promote your vocational agriculture program		3.1
61	Develop brochures to promote your vocational agriculture program		3.0
62	Prepare displays to promote your vocational agriculture program		3.1
68	Obtain feedback about your vocational agriculture program	3.0	3.1
75	Keep up-to-date professionally	3.5	3.2
78	Engage students in supervised occupational experiences that are related to their occupational objectives		3.1
79	Engage students in supervised occupational experiences that are appropriate in light of their ability		3.0
80	Engage students in supervised occupational experiences that are appropriate in light of their place of residence		3.0
85	Maintain adequate records determine student progress		3.2
86	Knowing legal liability of teachers	3.1	3.4

TABLE 19 (Cont'd.)

Compe- tency No.	Competencies	Types of Schools	
		Area Center (N=43)	High School (N=156)
93	Knowing youth labor rules and regulations		3.3
95	Knowing MIOSHA rules and regulations regard- ing vocational facili- ties		3.2
	TOTAL	13	21

Prepare teacher-made instructional materials
Provide instruction for gifted students
Test student psychomotor (Skill) performance
Assess student attitudes

In addition to the nine competencies needed by the teachers of both schools as already mentioned above, the High School teachers reported that they needed the competency numbers 10, 11, 59, 60, 61, 62, 78, 79, 80, 85, 93 and 95 (See Table 19).

Competencies Needed by Michigan Vocational Agriculture Teachers of Different Age Groups

In Part I of the survey instrument, the teachers were asked to check their age group out of the six age groups provided. The competencies rated 3.0 and above by the teachers of these six different age groups are shown in Table 20.

The largest number of competencies (41) was reported to be needed by teachers who were 25 years or less. This might be due to the fact that teachers in this age group are young and new in the profession and are enthusiastic to learn more about their roles and responsibilities.

Teachers who were between the age group of 26-30 years reported that they needed only 11 competencies. It appeared that many teachers within this age group would have obtained their Master's degree and were better

equipped for their jobs. This might explain why they felt that they needed to update themselves only in fewer competencies.

Thirty competencies were needed by teachers of 31-40 year age group. This appeared to be a substantial number of competencies needed by this group. Since many of the teachers in this age group might have stopped taking courses after the six years of fulfillment of vocational teaching certificate requirement, they might have felt the need for more inservice training.

The lowest number of competencies needed was reported by teachers of 41-50 years of age. Teachers in this age group might have developed a strong feeling of authority after staying for so long in the same profession that they felt they had little or no need to further improve. The need to update in more competencies appeared to increase as teachers advance in age. Teachers within ages 51-60 reported that they needed to improve in 18 competencies while teachers who were over 60 years of age reported that they needed to improve in 37 competencies. This might probably be due to age factor. It appeared that as the teachers advance in age they tended to give priority to what they thought they missed in their early years of training.

TABLE 20 MEAN SCORES OF COMPETENCIES MOST NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF DIFFERENT AGE GROUPS

Compe- tency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
1	Conduct a community survey to determine employee demands and student interests						3.0
5	Develop vocational agriculture program goals and objectives	3.0					3.3
8	Develop long-range plans for the vocational agriculture program	3.3		3.2		3.2	
10	Evaluate your vocational agriculture program	3.1		3.2	3.2	3.2	3.3
11	Determine needs and interests of students	3.2	3.0	3.1	3.1	3.2	
12	Develop student performance objectives						3.3
15	Select student instructional materials						3.0
16	Prepare teacher-made instructional materials	3.1		3.0			
20	Direct students in instructing other students	3.1					

TABLE 20 (Cont'd.)

Compe- tency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
21	Employ simulation techniques						3.0
22	Direct student laboratory experience		3.1	3.2			
23	Direct students in applying problem-solving techniques	3.0	3.0	3.2	3.1	3.0	
24	Employ the project method technique	3.0					
26	Employ reinforcement tech- niques	3.0					
29	Demonstrate a concept or principle						3.3
31	Use subject matter experts to present information			3.0			
32	Present information through audio-visual equipment						3.7
33	Plan and direct individual- ized instructional program	3.4		3.1		3.1	3.0
34	Prepare and utilize instruc- tion sheets	3.1				3.0	

TABLE 20 (Cont'd.)

Competency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
35	Develop self-contained instructional modules	3.4					
36	Direct program instruction						3.3
37	Provide instruction for handicapped students						3.0
38	Provide instruction for disadvantaged students					3.2	3.0
39	Provide instruction for gifted students			3.0		3.3	3.7
40	Estimate instructional resource needs	3.0					
41	Prepare budgets	3.2					
43	Maintain a filing system of teaching resources	3.0		3.1			
45	Assistant students in developing self-discipline	3.6	3.2	3.3		3.4	3.3
46	Organize the vocational agriculture lab/classroom facilities						3.0

TABLE 20 (Cont'd.)

Compe- tency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
47	Manage the vocational agri- culture lab/classroom facilities	3.0		3.0			
48	Utilize paraprofessionals effectively						3.0
49	Establish performance standards for students	3.3		3.0		3.0	3.7
50	Test student cognitive (knowledge) performance						3.3
51	Test student psychomotor (skill) performance	3.1				3.1	3.3
52	Assess student attitudes	3.0				3.1	3.3
54	Evaluate your instructional effectiveness	3.2	3.3			3.3	3.0
55	Gather student data using for- mal data collection techniques						3.0
57	Provide information on educa- tional career opportunities	3.1		3.1		3.0	3.0

TABLE 20 (Cont'd.)

Compe- tency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
58	Assist students in applying for employment or further education			3.0			
59	Develop a school community relations plan for your vocational agriculture programs	3.1	3.0				
60	Give presentations to promote your vocational agriculture program	3.1		3.1		3.1	
61	Develop brochures to promote your vocational agriculture program	3.3					
62	Prepare displays to promote your vocational agriculture program	3.3		3.1			3.3
67	Work with state and local educators						
68	Obtain feedback about your vocational agriculture program	3.1		3.4			
71	Supervise FFA activities						3.0
72	Guide participation in FFA award programs and contests						3.0

TABLE 20 (Cont'd.)

Competency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
75	Keep up-to-date professionally	3.0	3.3	3.4	3.1	3.0	3.7
76	Serve your teaching profession			3.0			3.3
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.4	3.1	3.3			
79	Engage students in supervised occupational experiences that are appropriate in light of their ability	3.3		3.1			
80	Engage students in supervised occupational experiences that are appropriate in light of their place of residence	3.2		3.0			
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies	3.3		3.1			
82	Assist students in developing a formal training agreement with the employer	3.0					

TABLE 20 (Cont'd.)

Compe- tency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
83	Develop training plan which in- cludes essential competencies and experiences that are to be acquired during the program	3.3		3.1			3.3
84	Provide students with effec- tive types of coordination, supervision, and occupational guidance in their occupational experience program	3.5		3.0			3.3
85	Maintain adequate records to determine student progress	3.4	3.1	3.3			
86	Knowing legal liability of teachers	3.5	3.3	3.4	3.2		3.3
87	Utilizing human relation skills					3.0	
89	Implementing a competency- based vocational agriculture program	3.2					3.0
90	Providing school-based job placement services						3.0
91	Dealing with alcohol and drug problem						3.0

TABLE 20 (Cont'd.)

Compe- tency No.	Competencies	Age Group of Teachers					
		25 yr or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
93	Knowing youth labor rules and regulations	3.0	3.2	3.4			3.3
94	Articulating secondary school vocational programs with post secondary vocational education	3.0					3.0
95	Knowing MOISHA rules and regulations regarding vocational facilities	3.4		3.3		3.1	3.0
TOTAL		41	11	30	5	18	37

Competencies Needed by Michigan Vocational Agriculture Teachers With and Without Major in Agricultural Education

As shown in Table 21, the Michigan vocational agriculture teachers with a major in agricultural education needed 17 competencies compared with 25 competencies needed by teachers with non-agricultural education majors. Sixteen out of the 17 competencies needed by the teachers with agricultural education as their major were also among the 25 competencies reported to be needed by the teachers with non-agricultural education majors. The fact that teachers with a major in agricultural education required updating in less number of competencies than teachers with non-agricultural education majors may mean that teachers with a major in agricultural education were more professionally prepared than non-agricultural education majors. If the above is true, then teachers with a major in agricultural education were better prepared than non-agricultural education majors in competency numbers 16, 31, 43, 44, 52, 59, 63, 79 and 80.

Competencies Needed by MSU and Non-MSU Graduates

The comparison of competencies needed for updating by Michigan vocational agriculture teachers who were graduates of MSU and teachers who were non-graduates of MSU are shown in Table 22. The data in the table revealed that the MSU graduates required updating in

TABLE 21 MEAN SCORES OF THE COMPETENCIES MOST NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WITH OR WITHOUT MAJOR IN AGRICULTURAL EDUCATION

Compe- tency No.	Competencies	Agric. Education Majors (N=143)	Non-Agric. Education Majors (N=52)
8	Develop long-range plans for the vocational agriculture program	3.1	3.1
10	Evaluate your vocational agriculture program	3.1	3.0
11	Determine needs and interests of students	3.1	3.0
16	Prepare teacher-made instructional materials		3.1
22	Direct student laboratory experience	3.0	3.1
23	Direct students in applying problem-solving techniques	3.0	3.2
31	Use subject matter experts to present information		3.0
33	Plan and direct individualized instructional programs	3.0	3.2
43	Maintain a filing system of teaching resources		3.2
44	Provide for safety needs of students		3.0
45	Assist students in developing self-discipline	3.2	3.4
52	Assess student attitudes		3.0
54	Evaluate your instructional effectiveness	3.2	3.1
59	Develop a school-community relations plan for your vocational agriculture program		3.2

TABLE 21 (Cont'd.)

Compe- tency No.	Competencies	Agric. Education Majors (N=143)	Non-Agric. Education Majors (N=52)
60	Give presentations to promote your vocational agriculture program	3.0	3.0
62	Prepare displays to promote your vocational agriculture program	3.0	
63	Prepare news releases and articles concerning your vocational agriculture program		3.1
68	Obtain feedback about your vocational agriculture program	3.1	3.2
75	Keep up-to-date professionally	3.2	3.5
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.1	3.0
79	Engage students in supervised occupational experiences that are appropriate in light of their ability		3.1
80	Engage students in supervised occupational experiences that are appropriate in light of their place of residence		3.0
85	Maintain adequate records to determine student progress	3.1	3.0

TABLE 21 (Cont'd.)

Compe- tency No.	Competencies	Agric. Education Majors (N=143)	Non-Agric. Education Majors (N=52)
86	Knowing legal liability of teachers	3.3	3.4
93	Knowing youth labor rules and regulations	3.2	3.1
95	Knowing MIOSHA rules and regulations regarding vocational facilities	3.1	3.2
TOTAL		17	25

TABLE 22 MEAN SCORES OF COMPETENCIES NEEDED BY MSU AND NON-MSU GRADUATE TEACHERS OF MICHIGAN VOCATIONAL AGRICULTURE

Compe- tency No.	Competencies	MSU Graduates (N=163)	Non-MSU Graduates (N=31)
8	Develop long-range plans for the vocational agriculture programs	3.1	
10	Evaluate your vocational agriculture programs	3.1	
11	Determine needs and interests of students	3.1	3.0
22	Direct student laboratory experience	3.1	
23	Direct students in applying problem-solving techniques	3.1	
33	Plan and direct individualized instructional program	3.1	
38	Provide instruction for disadvantaged students		3.0
45	Assist students in developing self-discipline	3.3	3.2
49	Establish performance standards for students	3.0	
52	Assess student attitudes		3.0
54	Evaluate your instructional effectiveness	3.2	
59	Develop a school community relations plan for your vocational agriculture program		3.2
60	Give presentations to promote your vocational agriculture program	3.0	3.1

TABLE 22 (Cont'd.)

Compe- tency No.	Competencies	MSU Graduates (N=163)	Non-MSU Graduates (N=31)
61	Develop brochures to promote your vocational agriculture program		3.1
62	Prepare displays to promote your vocational agriculture program		3.1
68	Obtain feedback about your vocational agriculture program	3.1	3.3
75	Keep up-to-date professionally	3.3	3.0
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.2	
79	Engage students in supervised occupational experiences that are appropriate in light of their ability	3.0	
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies		3.0
85	Maintain adequate records to determine student progress	3.1	3.1
86	Knowing legal liability of teachers	3.3	3.2

TABLE 22 (Cont'd.)

Compe- tency No.	Competencies	MSU Graduates (N=163)	Non-MSU Graduates (N=31)
93	Knowing youth labor rules and regulations	3.2	
95	Knowing MIOSHA rules and regulations regarding voca- tional facilities	3.2	3.0
TOTAL		18	14

18 competencies compared with their non-MSU graduate counterparts who required updating in only 14 competencies. Fifteen out of the 18 competencies needed by MSU graduates and seven out of the 14 competencies required by the non-MSU graduates were among the 15 most needed competencies reported by the 199 respondents.

Competencies Needed by Teachers Who Enrolled and Teachers Who Were Not Enrolled in Vocational Agriculture in High School

The mean scores of Michigan vocational agriculture teachers who were enrolled and those who were not enrolled in vocational agriculture in high school are presented in Table 23. The teachers that enrolled in vocational agriculture in high school required updating in 19 competencies compared with 16 competencies required by their counterparts who did not enroll. The number of competencies needed by the two groups of teachers were quite close. Furthermore, it was noticed that 13 of the 19 competencies needed by the teachers that enrolled were also among the 16 competencies needed by the teachers who did not enroll in vocational agriculture in high school. It can, therefore, be concluded that enrollment in vocational agriculture in high school had no influence on the competency needs of the teachers involved in this study.

TABLE 23 MEAN SCORES OF MICHIGAN VOCATIONAL AGRICULTURE
TEACHERS WHO WERE ENROLLED AND WHO WERE NOT EN-
ROLLED IN VOCATIONAL AGRICULTURE IN HIGH SCHOOL

Compe- tency No.	Competencies	Enrollment in Vo. Ag. in High Sch. (N=124)	Non-Enroll- ment in Vo. Ag. in High Sch. (N=75)
8	Develop long-range plans for the vocational agri- culture program	3.1	3.1
10	Evaluate your vocational agriculture program	3.1	3.0
11	Determine needs and in- terests of students	3.1	3.2
22	Direct student laboratory experience	3.1	
23	Direct students in apply- ing problem-solving tech- niques	3.1	3.1
33	Plan and direct indivi- dualized instructional program	3.1	3.0
43	Maintain a filing system of teaching resources		3.0
45	Assist students in de- veloping self-discipline	3.2	3.3
54	Evaluate your instruction- al effectiveness	3.1	3.2
57	Provide information on educational career oppor- tunities	3.0	
59	Develop a school community relations for your voca- tional agriculture program		3.1

TABLE 23 (Cont'd.)

Compe- tency No.	Competencies	Enrollment in Vo. Ag. in High Sch. (N=124)	Non-Enroll- ment in Vo. Ag. in High Sch. (N=75)
60	Give presentations to promote your vocational agriculture program	3.1	
62	Prepare displays to promote your vocational agriculture program	3.0	
68	Obtain feedback about your vocational agriculture program	3.1	3.1
75	Keep up-to-date professionally	3.2	3.4
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.1	3.0
79	Engage students in supervised occupational experiences that are appropriate in light of their ability		3.1
84	Provide students with effective types of coordination, supervision and occupational guidance in their occupational experience program	3.0	
85	Maintain adequate records to determine student progress	3.2	3.1

TABLE 23 (Cont'd.)

Compe- tency No.	Competencies	Enrollment in Vo. Ag. in High Sch. (N=124)	Non-Enroll- ment in Vo. Ag. in High Sch. (N=75)
86	Knowing legal liability of teachers	3.3	3.4
93	Knowing youth labor rules and regulations	3.3	
95	Knowing MIOSHA rules and regulations regarding voca- tional facilities	3.2	3.1
TOTAL		19	16

Competencies Needed by Michigan Vocational Agriculture Teachers Who Were FFA Members or Non-FFA Members in High School

The mean scores of the competencies most needed by Michigan vocational agriculture teachers who were FFA members and of those who were non-FFA members in High School are presented in Table 24. The teachers who were FFA members in high school reported that they needed to update in 21 competencies while teachers who were not FFA members reported that they needed to update only in 12 competencies. This may indicate that membership in FFA during high school has no influence on the teachers' perception of their competency needs. On the contrary it may be argued that FFA membership in high school had exposed them to the realization of their professional needs as vocational agriculture teachers.

Fifteen competencies out of the 21 competencies needed for updating by the teachers who were members of FFA in high school and ten out of the 12 competencies needed by the teachers who were not members of the FFA in high school were among the 15 top ranked competencies which were reported as needed by all the Michigan vocational agriculture teachers. Furthermore, 10 out of the 12 competencies required by teachers who were not FFA members were also required by the teachers who were FFA members in high school.

TABLE 24 MEAN SCORES OF THE COMPETENCIES MOST NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WHO WERE FFA MEMBERS AND NON-FFA MEMBERS IN HIGH SCHOOL

Compe- tency No.	Competencies	FFA in High Sch. (N=119)	Non-FFA in High Sch. (N=78)
8	Develop long-range plans for the vocational agriculture program	3.1	3.1
10	Evaluate your vocational agriculture program	3.1	
11	Determine needs and interests of students	3.1	3.2
22	Direct student laboratory experience	3.1	
23	Direct students in applying problem-solving techniques	3.1	3.1
33	Plan and direct individualized instructional program	3.1	
45	Assist students in developing self-discipline	3.2	3.3
54	Evaluate your instructional effectiveness	3.1	3.2
57	Provide information on educational career opportunities	3.0	
59	Develop a school community relations plan for your vocational agriculture program		3.1
60	Give presentations to promote your vocational agriculture program	3.1	

TABLE 24 (Cont'd.)

Compe- tency No.	Competencies	FFA in High Sch. (N=119)	Non-FFA in High Sch. (N=78)
62	Prepare displays to promote your vocational agriculture program	3.1	
68	Obtain feedback about your vocational agriculture program	3.1	
75	Keep up-to-date professionally	3.2	3.4
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.1	3.0
79	Engage students in supervised occupational experiences that are appropriate in light of their ability		3.0
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies	3.0	
84	Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	3.0	
85	Maintain adequate records to determine student progress	3.2	3.0
86	Knowing legal liability of teachers	3.3	3.3

TABLE 24 (Cont'd.)

Compe- tency No.	Competencies	FFA in High Sch. (N=119)	Non-FFA in High Sch. (N=78)
89	Implementing a competency- based vocational agriculture program	3.0	
93	Knowing youth labor rules and regulations	3.3	
95	Knowing MIOSHA rules and regulations regarding voca- tional facilities	3.2	3.0
TOTAL		21	12

Competencies Needed By Teachers of Various Educational Levels

In the analysis of the data, the teachers were regrouped into three categories as follows: (a) those with less than Bachelor's degree, (b) those with Bachelor's degree and (c) those with higher degrees--that is Master's, Specialist's, Doctoral. The data in Table 25 show the competency needs of the three categories of teachers mentioned above.

The category of teachers with the largest number of competency needs was those with Bachelor's degree. This group required updating in 27 competencies compared with 13 competencies needed by teachers with higher degrees. Contrary to expectation, the teachers with less than Bachelor's degree perceived that they needed updating only in ten competencies. Judging from the fact that this was only their self-perception and from their low levels of education, it could be assumed that these teachers did not have adequate concepts of their roles and responsibilities as teachers in the field of Agricultural and Natural Resource Education (ANRE).

Competencies Needed By Teachers With Different Vocational Teaching Certificates

The data in Tables 26 and 27 show the competencies needed for updating by Michigan teachers of vocational agriculture of different vocational teaching certificates.

TABLE 25 MEAN SCORES OF THE COMPETENCIES NEEDED BY TEACHERS OF VARIOUS EDUCATIONAL LEVELS

Compe- tency No.	Competencies	Less Than Bachelors (N=7)	Bachelors (N=87)	Above Bachelors (N=105)
5	Develop vocational agriculture program goals and objectives	3.0		
8	Develop long-range plans for the vocational agriculture program		3.1	3.1
10	Evaluate your vocational agriculture program		3.1	3.1
11	Determine needs and interests of students		3.1	3.1
17	Direct field trips	3.0		
20	Direct students in instructing other students		3.1	
22	Direct student laboratory experience		3.1	3.0
23	Direct students in applying problem-solving techniques	3.3	3.1	3.0
31	Use subject matter experts to present information	3.1		
33	Present information through audio-visual equipment	3.2		
35	Develop self-contained instructional modules	3.1		
43	Maintain a filing system of teaching resources		3.1	

TABLE 25 (Cont'd.)

Compe- tency No.	Competencies	Less Than Bachelors (N=7)	Bachelors (N=87)	Above Bachelors (N=105)
45	Assist students in developing self-discipline		3.4	3.2
49	Establish performance standards for students		3.1	
52	Assess student attitudes		3.0	
53	Determine student grades	3.0		
54	Evaluate your instructional effectiveness	3.3	3.1	3.1
59	Develop a school community relations plan for your vocational agriculture program	3.3	3.1	
60	Give presentations to promote your vocational agriculture program		3.2	
61	Develop brochures to promote your vocational agriculture program		3.2	
62	Prepare displays to promote your vocational agriculture program		3.3	
68	Obtain feedback about your vocational agriculture program		3.1	3.2

TABLE 25 (Cont'd.)

Compe- tency No.	Competencies	Less Than Bachelors (N=7)	Bachelors (N=87)	Above Bachelors (N=105)
75	Keep up-to-date pro- fessionally		3.3	3.2
78	Engage students in supervised occupa- tional experiences that are related to their occupational objectives		3.3	
79	Engage students in supervised occupa- tional experiences that are appropriate in light of their ability		3.2	
80	Engage students in supervised occupa- tional experiences that are appropriate in light of their place of residence		3.2	
81	Select and evaluate training stations to assist students in obtaining desired occupational compe- tencies		3.1	
83	Develop training plan which includes es- sential competencies and experiences that are to be acquired during the program		3.0	

TABLE 25 (Cont'd.)

Compe- tency No.	Competencies	Less Than Bachelors (N=7)	Bachelors (N=87)	Above Bachelors (N=105)
84	Provide students with effective types of co-ordination, supervision, and occupational guidance in their occupational experience program		3.2	
85	Maintain adequate records to determine student progress		3.3	3.0
36	Knowing legal liability of teachers		3.5	3.2
93	Knowing youth labor rules and regulations		3.1	3.2
95	Knowing MIOSHA rules and regulations regarding vocational facilities	3.2	3.2	3.1
TOTAL		10	27	13

**TABLE 26 NUMBER OF COMPETENCIES NEEDED BY TEACHERS WITH
DIFFERENT VOCATIONAL TEACHING CERTIFICATES**

Type of Certificates	Number of Competencies Needed
Annual Vocational Authorization in Agriculture (AVA)	37
Temporary Vocational Authorization in Agriculture (TVA)	29
Full Vocational Authorization in Agriculture (FVA)	15
Vocational Endorsement of Secondary Provisional Certificate in Agriculture (SSP)	27
Vocational Endorsement of Secondary Continuing Certificate in Agriculture (SSC)	14

As expected the largest number of competencies were reported to be needed by those teachers who did not have permanent vocational teaching certificate (AVA, TVA and SSP as abbreviated above). Most of these teacher groups were probably working towards higher qualifications for the permanent vocational teaching certificates, hence they showed interest in gaining more knowledge of the teaching profession.

TABLE 27 MEAN SCORES OF COMPETENCIES MOST NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF DIFFERENT VOCATIONAL TEACHING CERTIFICATES

Competency No.	Competencies	Type of Certification				
		AVA N=19	TVA N=14	FVA N=15	SSP N=49	SSC N=102
1	Conduct a community survey to determine employment demands and student interests		3.1			
5	Develop vocational agriculture programs goals and objectives	3.3				
7	Develop a course of study	3.0				
8	Develop long-range plans for the vocational agriculture program	3.1			3.1	3.0
10	Evaluate your vocational agriculture program	3.0	3.3	3.1		3.1
11	Determine needs and interests of students	3.0	3.5		3.1	3.1
16	Prepare teacher-made instructional materials	3.1			3.0	
19	Stimulate learning through brainstorming and buzz groups		3.2			
20	Direct students in instructing other students	3.1	3.1			
21	Employ simulation techniques	3.0				
22	Direct student laboratory experience	3.1		3.1	3.2	3.0
23	Direct students in applying problem-solving techniques	3.1		3.3	3.2	3.0

TABLE 27 (Cont'd.)

Competency No.	Competencies	Type of Certification				
		AVA N=19	TVA N=14	FVA N=15	SSP N=49	SSC N=102
26	Employ reinforcement techniques	3.2				
27	Present information through an illustrated talk	3.0				
31	Use subject matter experts to present information	3.3				
32	Present information through audio-visual equipment	3.0				
33	Plan and direct individualized instructional program	3.3		3.1	3.2	
35	Develop self-contained instructional modules	3.0			3.3	
38	Provide instruction for disadvantaged students			3.1		
39	Provide instruction for gifted students			3.1		
40	Estimate instructional resource needs		3.0			
42	Purchase supplies and equipment (specification and bids)		3.0			
43	Maintain a filing system of teaching resources				3.1	
44	Provide for safety needs of students	3.1				
45	Assist students in developing self-discipline	3.6	3.1	3.1	3.3	3.2

TABLE 27 (Cont'd.)

Competency No.	Competencies	Type of Certification				
		AVA N=19	TVA N=14	FVA N=15	SSP N=49	SSC N=102
46	Organize the vocational agriculture lab/classroom facilities		3.0			
47	Manage the vocational agriculture lab/classroom facilities	3.1				
49	Establish performance standards for students	3.1	3.1	3.0	3.1	
50	Test student cognitive (knowledge) performance	3.1				
51	Test student psychomotor (skill) performance	3.1	3.3		3.0	
52	Assess student attitudes	3.2	3.3			
53	Determine student grades	3.0				
54	Evaluate your instructional effectiveness	3.5	3.1	3.0	3.1	3.1
57	Provide information on educational career opportunities	3.4		3.1		
58	Assist students in applying for employment or further education	3.2				
59	Develop a school community plan for your vocational agriculture program	3.2	3.1		3.0	
60	Give presentations to promote your vocational agriculture program	3.1	3.3			

TABLE 2/7 (Cont'd.)

Competency No.	Competencies	Type of Certification				
		AVA N=19	TVA N=14	FVA N=15	SSP N=49	SSC N=102
61	Develop brochures to promote your vocational agriculture program		3.3		3.0	
62	Prepare displays to promote your vocational agriculture program		3.1		3.1	
63	Prepare news releases and articles concerning your vocational agriculture program		3.2			
68	Obtain feedback about your vocational agriculture program	3.2	3.6	3.1	3.1	3.0
75	Keep up-to-date professionally	3.4	3.1		3.3	3.3
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.1	3.1		3.3	3.1
79	Engage students in supervised occupational experiences that are appropriate in light of their ability	3.1	3.3		3.2	
80	Engage students in supervised occupational experiences that are appropriate in light of their place of residence	3.1	3.4		3.1	

TABLE 27 (Cont'd.)

Compe- tency No.	Competencies	Type of Certification				
		AVA N=19	TVA N=14	FVA N=15	SSP N=49	SSC N=102
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies		3.2		3.1	
82	Assist students in developing a formal training agreement with the employer		3.2			
84	Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	3.0	3.1		3.2	
85	Maintain adequate records to determine student progress		3.5	3.1	3.3	3.1
86	Knowing legal liability of teachers	3.0	3.7	3.3	3.5	3.2
87	Utilizing human relation skills			3.0		
92	Teaching employability skill topics (job applications, interviewing, etc.)			3.0		
93	Knowing youth labor rules and regulations				3.3	3.3

TABLE 27 (Cont'd.)

Compe- tency No.	Competencies	Type of Certification				
		AVA N=19	TVA N=14	FVA N=15	SSP N=49	SSC N=102
94	Articulating second- ary school vocational program with post- secondary vocational education				3.0	
95	Knowing MIOSHA rules and regulations re- garding vocational facilities	3.1	3.4		3.2	3.1
TOTAL		37	29	15	27	14

Influence of Number of Years of Practical Work Experience
in Areas of Agriculture Before Teaching on the Self-
Perceived Competencies Needed by the Teachers

The responses to the question on number of years of practical work experience that the teachers had in areas of agriculture before they began teaching was regrouped as follows: (a) 3 years or less, (b) 4 to 9 years and (c) 10 years or more. The results of the analysis are presented in Table 28:

The largest number of competencies needed for updating was reported by teachers who had 3 years or less of practical work experience. This group of teachers perceived that they needed updating in 28 competencies. The lowest number of competencies (10) was required by teachers with 4-9 years of practical work experience. Teachers with 10 years or more of practical work experience, however, perceived that they needed to update in 20 competencies.

If practical work experience in areas of agriculture before teaching had any influence on how well the teachers were prepared for their teaching profession, one could expect the competencies needed by the teachers to decline with the increasing number of years of practical work experience. The needs of the teachers with 3 years or less of practical work experience in areas of agriculture followed this trend. On the contrary, teachers

TABLE 28 MEAN SCORES OF THE COMPETENCIES NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF DIFFERENT YEARS OF PRACTICAL WORK EXPERIENCE IN AREAS OF AGRICULTURE BEFORE TEACHING

Compe- tency No.	Competencies	3 Years or Less (N=37)	4-9 Years (N=58)	10 Years or more (N=104)
8	Develop long-range plans for the vocational agriculture program	3.0		3.2
10	Evaluate your vocational agriculture program			3.2
11	Determine needs and interests of students	3.1		3.2
16	Prepare teacher-made instructional materials	3.0		
20	Direct students in instructing other students	3.0		
22	Direct student laboratory experience		3.0	3.1
23	Direct students in applying problem-solving techniques		3.1	3.1
33	Plan and direct individualized instructional program	3.2	3.0	3.0
35	Develop self-contained instructional modules	3.1		
39	Provide instruction for gifted students	3.1		
43	Maintain a filing system of teaching resources		3.1	
45	Assist students in developing self-discipline	3.2	3.2	3.3

TABLE 28 (Cont'd.)

Compe- tency No.	Competencies	3 Years or Less (N=37)	4-9 Years (N=58)	10 Years or more (N=104)
49	Establish performance standards for students	3.1		
51	Test student psychomotor (skill) performance	3.0		
52	Assess student attitudes	3.0		
54	Evaluate your instructional effectiveness	3.3	3.0	3.2
58	Assist students in applying for employment or further education			3.0
59	Develop a school community relations plan for your vocational agriculture program	3.0		3.1
60	Give presentations to promote your vocational agriculture program			3.2
61	Develop brochures to promote your vocational agriculture program	3.1		3.0
62	Prepare displays to promote your vocational agriculture program	3.1		3.2
68	Obtain feedback about your vocational agriculture program	3.3	3.1	3.0
75	Keep up-to-date professionally	3.7		3.3
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.4		3.1

TABLE 28 (Cont'd.)

Compe- tency No.	Competencies	3 Years or Less (N=37)	4-9 Years (N=58)	10 Years or more (N=104)
79	Engage students in supervised occupational experiences that are appropriate in light of their ability	3.3		
80	Engage students in supervised occupational experiences that are appropriate in light of their place of residence	3.1		
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies	3.2		
83	Develop training plan which includes essential competencies and experiences that are to be acquired during the program	3.1		
84	Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	3.4		
85	Maintain adequate records to determine student progress	3.3		3.1
86	Knowing legal liability of teachers	3.3	3.3	3.3
87	Utilizing human relation skills	3.0		

TABLE 28 (Cont'd.)

Compe- tency No.	Competencies	3 Years or Less (N=37)	4-9 Years (N=58)	10 Years or more (N=104)
93	Knowing youth labor rules and regulations	3.0	3.0	3.3
95	Knowing MIOSHA rules and regulations regarding vocational facilities	3.2	3.0	3.2
TOTAL		28	10	20

with the longest experience (10 years or more) perceived that they needed larger number of competencies than those with 4-9 years of practical work experience.

Influence of Number of Years of Teaching Experience in Vocational Agriculture on the Self-Perceived Competencies Needed by the Teachers

The data in Table 29 show the competencies needed by teachers with 6 years or less and 6 or more years of teaching experience in vocational agriculture. Teachers who had 6 years or less of teaching experience indicated that they needed 25 competencies while the teachers with 6 or more years of teaching experience indicated that they needed 15 competencies. It would be expected that the more teaching experience the teacher had, the better equipped he/she would be for the teaching profession. The self-perceived competencies needed by the teachers with different number of years of teaching experience involved in this study supported this statement.

Competencies Needed by Teachers With Interest and Without Interest in Inservice Training in the Next Two Years

The self-perceived competency needs of the teachers who had interest in inservice in the next two years and those who did not have interest are shown in Table 30. Teachers who expressed interest for inservice training needed 24 competencies while teachers without interest

TABLE 29 MEAN SCORES OF THE COMPETENCIES NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF DIFFERENT YEARS OF TEACHING EXPERIENCE

Competency No.	Competencies	Years of Teaching Experience	
		6 Years or Less N=75	Above 6 Years N=124
8	Develop long-range plans for the vocational agriculture program	3.1	3.0
10	Evaluate your vocational agriculture program		3.1
11	Determine needs and interests of students	3.2	3.1
22	Direct student laboratory experience	3.1	3.1
23	Direct students in applying problem-solving techniques	3.1	3.1
33	Plan and direct individualized instructional program	3.1	3.0
35	Develop self-contained instructional modules	3.0	
45	Assist students in developing self-discipline	3.4	3.2
49	Establish performance standards for students	3.0	
54	Evaluate your instructional effectiveness	3.1	3.2
59	Develop a school community relations plan for your vocational agriculture program	3.1	

TABLE 29 (Cont'd.)

Competency No.	Competencies	Years of Teaching Experience	
		6 Years or Less N=75	Above 6 Years N=124
60	Give presentations to promote your vocational agriculture program	3.0	3.0
61	Develop brochures to promote your vocational agriculture program	3.0	
62	Prepare displays to promote your vocational agriculture program	3.1	
68	Obtain feedback about your vocational agriculture program	3.2	3.0
75	Keep up-to-date professionally	3.3	3.3
78	Engage students in supervised occupational experiences that are related to their occupational objectives	3.3	
79	Engage students in supervised occupational experiences that are appropriate in light of their ability	3.2	
80	Engage students in supervised occupational experiences that are appropriate in light of their place of residence	3.1	
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies	3.1	

TABLE 29 (Cont'd.)

Competency No.	Competencies	Years of Teaching Experience	
		6 Years or Less N=75	Above 6 Years N=124
83	Develop training plan which includes essential competencies and experiences that are to be acquired during the program	3.1	
84	Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	3.4	
85	Maintain adequate records to determine student progress	3.1	3.1
86	Knowing legal liability of teachers	3.4	3.2
93	Knowing youth labor rules and regulations	3.1	3.2
95	Knowing MIOSHA rules and regulations regarding vocational facilities	3.2	3.1
TOTAL		25	15

TABLE 30 MEAN SCORES OF THE COMPETENCIES NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WITH INTEREST AND WITHOUT INTEREST IN INSERVICE TRAINING IN THE NEXT TWO YEARS

Compe- tency No.	Competencies	Interest In Inser- vice Train- ing (N=171)	No Interest In Inser- vice Train- ing (N=23)
1	Conduct a community survey to determine employment demands and student interests		3.1
8	Develop long-range plans for the vocational agriculture program	3.1	
10	Evaluate your vocational agriculture program	3.1	3.1
11	Determine needs and interests of students	3.1	
22	Direct student laboratory experience	3.1	
23	Direct students in applying problem-solving techniques	3.1	3.1
33	Plan and direct individualized instructional program	3.1	
43	Maintain a filing system of teaching resources	3.0	
45	Assist students in developing self-discipline	3.3	
49	Establish performance standards for students	3.0	
54	Evaluate your instructional effectiveness	3.2	

TABLE 30 (Cont'd.)

Compe- tency No.	Competencies	Interest In Inser- vice Train- ing (N=171)	No Interest In Inser- vice Train- ing (N=23)
59	Develop a school com- munity relations plan for your vocational agriculture program	3.0	
60	Give presentation to promote your vocational agriculture program	3.1	
62	Prepare displays to pro- mote your vocational agriculture program	3.1	
68	Obtain feedback about your vocational agri- culture program	3.2	
75	Keep up-to-date profes- sionally	3.4	
78	Engage students in super- vised occupational experi- ences that are related to their occupational objec- tives	3.2	
79	Engage students in super- vised occupational experi- ences that are appropriate in light of their ability	3.1	
80	Engage students in super- vised occupational experi- ences that are appropriate in light of their place of residence	3.1	

TABLE 30 (Cont'd.)

Compe- tency No.	Competencies	Interest In Inser- vice Train- ing (N=171)	No Interest In Inser- vice Train- ing (N=23)
81	Select and evaluate training stations to assist students in obtaining desired occupational competencies	3.0	
84	Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	3.0	
85	Maintain adequate records to determine student progress	3.2	
86	Knowing legal liability of teachers	3.4	
93	Knowing youth labor rules and regulations	3.2	
95	Knowing MIOSHA rules and regulations regarding vocational facilities	3.2	
TOTAL		24	3

needed only three competencies. These findings showed an agreement between the teachers' self-perceived competency needs and their interest in inservice training during the next two years.

Influence of Training in Competency Based Education (CBE) on the Self-Perceived Competencies Needed by the Teachers

The data in Table 31 show the competencies needed by the teachers who had participated in Competency Based Education (CBE) training and those who had not participated in such training. From this table, it could be realized that there was not much difference in the competencies needed by both groups of teachers. Teachers who had participated in CBE training needed 16 competencies while teachers who had not participated in CBE training needed 18 competencies. This would suggest that CBE training had no influence on the professional competency needs of the teachers involved in this study.

Results of the Statistical Tests for the Research Hypotheses

In this section, the results of statistical tests of the research hypothesis are presented. The null hypotheses were tested using crosstabulations and the chi-square statistics on only the 15 competencies that had mean scores of 3.0 and above which was the inservice

TABLE 31 MEAN SCORES OF THE COMPETENCIES NEEDED BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WHO HAD RECEIVED TRAINING AND THOSE WHO HAD NOT RECEIVED TRAINING IN COMPETENCY BASED EDUCATION

Competency No.	Competencies	Training in CBE (N=149)	No Training in CBE (N=48)
5	Develop vocational agriculture program goals and objectives		3.0
8	Develop long-range plans for the vocational agriculture program	3.1	3.1
10	Evaluate your vocational agriculture program		3.3
11	Determine needs and interests of students	3.1	3.2
22	Direct student laboratory experience	3.0	3.0
23	Direct student in applying problem-solving techniques	3.1	3.0
33	Plan and direct individualized instructional program	3.1	3.0
43	Maintain a filing system of teaching resources	3.0	
45	Assist students in developing self-discipline	3.2	3.2
49	Establish performance standards for students		3.2
50	Test student cognitive (knowledge) performance		3.0
54	Evaluate your instructional effectiveness	3.1	3.2

TABLE 31 (Cont'd.)

Compe- tency No.	Competencies	Training in CBE (N=149)	No Training in CBE (N=48)
59	Develop a school communi- ty relations plan for your vocational agricul- ture program		3.0
60	Give presentations to pro- mote your vocational agriculture program		3.0
68	Obtain feedback about your vocational agri- culture program	3.1	3.0
75	Keep up-to-date profes- sionally	3.4	
78	Engage students in super- vised occupational experi- ences that are related to their occupational objec- tives	3.1	3.0
79	Engage students in super- vised occupational experi- ences that are appropriate in light of their ability	3.0	
85	Maintain adequate records to determine student progress	3.0	3.0
86	Knowing legal liability of teachers	3.3	3.3
93	Knowing youth rules and regulations	3.3	
95	Knowing MIOSHA rules and regulations regarding vocational facilities	3.2	3.0
TOTAL		16	18

need indicator chosen by the researcher. The hypotheses were tested at .05 level of probability. The results were as follows:

Ho:1 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the types of school where they teach.

The data in Table 32 show the chi-square summary results of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by the Michigan vocational agriculture teachers. These results indicated that the null hypothesis was rejected for 4 competencies and the null hypothesis was not rejected for 11 competencies. Therefore there was a significant relationship between the type of school where the teachers taught and the following four competencies:

Assist students in developing self-discipline

Keep up-to-date professionally

Knowing youth labor rules and regulations

Knowing MIOSHA rules and regulations regarding vocational facilities

Ho:2 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their age groups.

The data in Table 33 show the chi-square summaries of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by the teachers

TABLE 32 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF DIFFERENT SCHOOLS

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	7.416	5	.92	Not Rejected
E	Assist students in developing self-discipline	12.311	5	.031	Rejected
J	Keep up-to-date professionally	19.216	5	.002	Rejected
L	Knowing youth labor rules and regulations	12.453	5	.029	Rejected
F	Evaluate your instructional effectiveness	5.094	5	.405	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	13.0212	5	.023	Rejected
K	Maintain adequate records to determine student progress	4.747	5	.448	Not Rejected
B	Determine needs and interests of students	7.567	5	.182	Not Rejected

TABLE 32 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct students in applying problem-solving techniques	10.276	5	.068	Not Rejected
H	Obtain feedback about your vocational agriculture programs	1.454	5	.918	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	7.708	5	.73	Not Rejected
A	Evaluate your vocational agriculture program	4.621	5	.464	Not Rejected
A	Develop long-range plans for your vocational agriculture program	4.697	5	.454	Not Rejected
D	Plan and direct individualized instructional program	7.575	5	.181	Not Rejected

TABLE 32 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	8.814	5	.117	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

TABLE 33 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF DIFFERENT AGE GROUPS

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	37.927	25	.047	Rejected
E	Assist students in developing self-discipline	21.551	25	.662	Not Rejected
J	Keep up-to-date professionally	20.489	25	.721	Not Rejected
L	Knowing youth labor rules and regulations	31.000	25	.189	Not Rejected
F	Evaluate your instructional effectiveness	32.642	25	.140	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	23.493	25	.549	Not Rejected
K	Maintain adequate records to determine student progress	29.240	25	.254	Not Rejected

Table 33 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
B	Determine needs and interests of students	19.087	25	.793	Not Rejected
C	Direct students in applying problem-solving techniques	24.668	25	.481	Not Rejected
H	Obtain feedback about your vocational agriculture program	24.663	25	.481	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	39.676	25	.032	Rejected
A	Evaluate your vocational agriculture program	26.202	25	.397	Not Rejected
A	Develop long-range plans for vocational agriculture program	27.347	25	.339	Not Rejected

TABLE 33 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
D	Plan and direct individualized instructional program	28.208	25	.298	Not Rejected
C	Direct student laboratory experience	26.089	25	.403	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

of different age groups. This table shows that the null hypothesis was rejected for two competencies and the null hypothesis was not rejected for 13 competencies. Therefore there was a significant relationship between the teachers of different age groups and the following two competencies:

Knowing legal liability of teachers

Engage students in supervised occupational experiences that are related to their occupational objectives

Ho:3 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their major at the time of graduation from college.

The data in Table 34 show the summary of the chi-square results of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers of different majors at graduation from college. The table reveals that the null hypothesis could not be rejected in all the 15 cases. Therefore one can conclude that this analysis failed to find a significant relationship between the self-perceived professional competencies needed by the Michigan vocational agriculture teachers and their major at the time of graduation from college.

Ho:4 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the universities from which they graduated.

TABLE 34 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF DIFFERENT MAJORS AT GRADUATION FROM COLLEGE

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	9.467	5	.092	Not Rejected
E	Assist students in developing self-discipline	1.594	5	.092	Not Rejected
J	Keep up-to-date professionally	4.148	5	.528	Not Rejected
L	Knowing youth labor rules and regulations	4.106	5	.534	Not Rejected
F	Evaluate your instructional effectiveness	2.332	5	.802	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	10.153	5	.071	Not Rejected
K	Maintain adequate records to determine students progress	2.783	5	.733	Not Rejected
B	Determine needs and interests of students	3.300	5	.654	Not Rejected

TABLE 34 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct students in applying problem-solving techniques	9.534	5	.090	Not Rejected
H	Obtain feedback about your vocational agriculture programs	5.896	5	.317	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	2.792	5	.733	Not Rejected
A	Evaluate your vocational agriculture program	3.561	5	.614	Not Rejected
A	Develop long-range plans for vocational agriculture program	2.826	5	.727	Not Rejected
D	Plan and direct individualized instructional program	2.525	5	.773	Not Rejected

TABLE 34 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	4.364	5	.498	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

The data in Table 35 show the summary of the chi-square results of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by MSU graduate teachers of vocational agriculture and non-MSU graduate teachers. The table shows that the null hypothesis was rejected for 3 competencies and the null hypothesis was not rejected for 12 competencies. Therefore there was a significant relationship between the university from which the teachers graduated and the following 3 competencies:

Assist students in developing self-discipline

Evaluate your instructional effectiveness

Develop long-range plans for vocational agriculture program

Ho:5 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and enrollment in vocational agriculture in high school.

The summary of the chi-square results of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers who enrolled and teachers who did not enroll in vocational agriculture in high school is provided in Table 36. This table showed that the null hypothesis could not be rejected in any of the 15 cases. Therefore one can conclude that there was no significant relationship between the

TABLE 35 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS WHO WERE MSU AND NON-MSU GRADUATES

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	5.059	5	.409	Not Rejected
E	Assist students in developing self-discipline	18.820	5	.002	Rejected
J	Keep up-to-date professionally	2.536	5	.771	Not Rejected
L	Knowing youth labor rules and regulations	4.446	5	.487	Not Rejected
F	Evaluate your instructional effectiveness	12.346	5	.030	Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	5.302	5	.380	Not Rejected
K	Maintain adequate records to determine student progress	2.886	5	.718	Not Rejected

TABLE 35 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
B	Determine needs and interests of students	5.175	5	.395	Not Rejected
C	Direct students in applying problem-solving techniques	2.301	5	.806	Not Rejected
H	Obtain feedback about your vocational agriculture program	7.251	5	.203	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	10.514	5	.062	Not Rejected
A	Evaluate your vocational agriculture program	1.340	5	.931	Not Rejected
A	Develop long-range plans for your vocational agriculture program	13.830	5	.017	Rejected

TABLE 35 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
D	Plan and direct individualized instructional program	6.202	5	.287	Not Rejected
C	Direct student laboratory experience	5.477	5	.360	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

TABLE 36 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS ENROLLED AND TEACHERS NOT ENROLLED IN VOCATIONAL AGRICULTURE IN HIGH SCHOOL

Area ¹	Competencies	STATISTICAL RESULTS			REMARKS
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	1.678	5	.892	Not Rejected
E	Assist students in developing self-discipline	3.201	5	.669	Not Rejected
J	Keep up-to-date professionally	2.072	5	.839	Not Rejected
L	Knowing youth labor rules and regulations	4.600	5	.467	Not Rejected
F	Evaluate your instructional effectiveness	2.582	5	.764	Not Rejected
L	Knowing MIOSHA rules and regulations	2.043	5	.843	Not Rejected
K	Maintain adequate records to determine student progress	2.834	5	.726	Not Rejected
B	Determine needs and interests of students	6.705	5	.244	Not Rejected
C	Direct students in applying problem-solving techniques	4.356	5	.499	Not Rejected

TABLE 36 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
H	Obtain feedback about your vocational agriculture programs	4.730	5	.450	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	1.800	5	.876	Not Rejected
A	Evaluate your vocational agriculture program	5.066	5	.408	Not Rejected
A	Develop long-range plans for vocational agriculture program	4.266	5	.512	Not Rejected
D	Plan and direct individualized instructional program	0.807	5	.977	Not Rejected

TABLE 36 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	7.713	5	.73	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

self-perceived professional competencies needed by the Michigan vocational agriculture teachers and their major at the time of graduation from college.

Ho:6 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and FFA membership in high school.

The test results in Table 37 show the summary of the chi-square of frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers who enrolled in FFA and teachers who did not enroll in FFA in high school. The table indicates that the null hypothesis could not be rejected for all the competencies tested. Therefore one can conclude that there was no significant relationship between the self-perceived professional education competencies needed by Michigan vocational agriculture teachers and FFA membership in high school.

Ho:7 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their educational levels.

In Table 38, the summary of the chi-square tests of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers of different educational levels is presented.

TABLE 37 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS WHO WERE AND TEACHERS WHO WERE NOT FFA MEMBERS IN HIGH SCHOOL

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	1.282	5	.937	Not Rejected
E	Assist students in developing self-discipline	3.191	5	.671	Not Rejected
J	Keep up-to-date professionally	2.102	5	.835	Not Rejected
L	Knowing youth labor rules and regulations	8.243	5	.143	Not Rejected
F	Evaluate your instructional effectiveness	1.307	5	.934	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	1.385	5	.926	Not Rejected
K	Maintain adequate records to determine student progress	2.701	5	.746	Not Rejected

TABLE 37 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
B	Determine needs and interests of students	6.181	5	.289	Not Rejected
C	Direct students in applying problem-solving techniques	3.501	5	.623	Not Rejected
H	Obtain feedback about your vocational agriculture programs	4.880	5	.431	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	1.463	5	.917	Not Rejected
A	Evaluate your vocational agriculture program	4.686	5	.455	Not Rejected
A	Develop long-range plans for vocational agriculture program	4.242	5	.515	Not Rejected

TABLE 37 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
D	Plan and direct individualized instructional program	1.360	5	.929	Not Rejected
C	Direct student laboratory experience	5.793	5	.327	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

TABLE 38 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF DIFFERENT EDUCATIONAL LEVELS

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	37.177	25	.056	Not Rejected
E	Assist students in developing self-discipline	36.908	25	.059	Not Rejected
J	Keep up-to-date professionally	34.336	25	.101	Not Rejected
L	Knowing youth labor rules and regulations	18.755	25	.808	Not Rejected
F	Evaluate your instructional effectiveness	27.360	25	.338	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	26.899	25	.361	Not Rejected
K	Maintain adequate records to determine student progress	33.030	25	.130	Not Rejected
B	Determine needs and interests of students	38.511	25	.041	Rejected

TABLE 38 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct students in applying problem-solving techniques	18.653	25	.814	Not Rejected
H	Obtain feedback about your vocational agriculture programs	17.896	25	.847	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	26.853	25	.363	Not Rejected
A	Evaluate your vocational agriculture program	25.994	25	.408	Not Rejected
A	Develop long-range plans for vocational agriculture program	25.645	25	.427	Not Rejected
D	Plan and direct individualized instructional program	30.459	25	.208	Not Rejected

TABLE 38 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	38.046	25	.046	Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

The table shows that the null hypothesis was rejected for 2 competencies and the null hypothesis was not rejected for 13 competencies. Therefore there was a significant relationship between the teachers' educational levels and the following 2 competencies:

Determine needs and interests of students

Direct student laboratory experience

Ho:8 There will be no relationship between the self-perceived professional education competencies needed by the following five groups of vocational agriculture teachers in Michigan.

- a. Annual vocational authorization in agriculture
- b. Temporary vocational authorization in agriculture
- c. Full vocational authorization in agriculture
- d. State secondary provisional certificate with vocational endorsement in agriculture
- e. State secondary continuing certificate with vocational endorsement in agriculture

The summary of the chi-square tests of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers of different vocational teaching certificate is presented in Table 39. It was observed from this table that the null hypothesis was rejected for 3 competencies and the null hypothesis was not rejected for 12 competencies. Therefore there was a significant relationship between the teachers of different vocational teaching certification and the following 3 competencies:

TABLE 39 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF DIFFERENT VOCATIONAL TEACHING CERTIFICATE IN AGRICULTURE

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	34.824	20	.021	Rejected
E	Assist students in developing self-discipline	17.639	20	.611	Not Rejected
J	Keep up-to-date professionally	14.028	20	.829	Not Rejected
L	Knowing youth labor rules and regulations	17.292	20	.634	Not Rejected
F	Evaluate your instructional effectiveness	21.724	20	.356	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	28.511	20	.098	Not Rejected
K	Maintain adequate records to determine student progress	12.999	20	.877	Not Rejected

TABLE 39 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
B	Determine needs and interests of students	20.721	20	.413	Not Rejected
C	Direct students in applying problem-solving techniques	14.917	20	.781	Not Rejected
H	Obtain feedback about your vocational agriculture programs	13.348	20	.862	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	39.077	20	.043	Rejected
A	Evaluate your vocational agriculture program	16.379	20	.693	Not Rejected
A	Develop long-range plans for vocational agriculture programs	14.925	20	.781	Not Rejected

TABLE 39 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
D	Plan and direct individualized instructional program	23.456	20	.267	Not Rejected
C	Direct student laboratory experience	34.253	20	.021	Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional Management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

Knowing legal liability of teachers

Engage students in supervised occupational experiences that are related to their occupational objectives

Direct student laboratory experience

Ho:9 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the years of practical work experience before teaching in the areas of agriculture.

The summary of the chi-square tests of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers who had different number of years of practical work experience in the areas of agriculture is presented in Table 40. The table indicates that the null hypothesis could not be rejected in all the 15 cases. Therefore there was no significant relationship between the self-perceived professional education competencies needed by the teachers and the years of practical work experience before teaching in the areas of agriculture.

Ho:10 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and their years of teaching experience in vocational agriculture.

The test results in Table 41 show the summary of the chi-square of frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers

TABLE 40 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF VARIOUS YEARS OF PRACTICAL WORK EXPERIENCE BEFORE TEACHING IN THE AREAS OF AGRICULTURE

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	10.497	15	.787	Not Rejected
E	Assist students in developing self-discipline	8.291	15	.912	Not Rejected
J	Keep up-to-date professionally	23.682	15	.071	Not Rejected
L	Knowing youth labor rules and regulations	17.375	15	.297	Not Rejected
F	Evaluate your instructional effectiveness	9.273	15	.863	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	10.295	15	.801	Not Rejected
K	Maintain adequate records to determine student progress	12.471	15	.643	Not Rejected

TABLE 40 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
B	Determine needs and interests of students	23.341	15	.077	Not Rejected
C	Direct students in applying problem-solving techniques	14.451	15	.492	Not Rejected
H	Obtain feedback about your vocational agriculture program	16.227	15	.367	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	16.890	15	.325	Not Rejected
A	Evaluate your vocational agriculture program	23.013	15	.084	Not Rejected
A	Develop long-range plans for vocational agriculture program	9.676	15	.840	Not Rejected

TABLE 40 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
D	Plan and direct individualized instructional program	15.295	15	.430	Not Rejected
C	Direct student laboratory experience	8.809	15	.887	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

TABLE 41 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS OF VARIOUS YEARS OF TEACHING EXPERIENCE IN VOCATIONAL AGRICULTURE

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	6.418	5	.268	Not Rejected
E	Assist students in developing self-discipline	7.258	5	.202	Not Rejected
J	Keep up-to-date professionally	5.906	5	.315	Not Rejected
L	Knowing youth labor rules and regulations	9.476	5	.092	Not Rejected
F	Evaluate your instructional effectiveness	10.203	5	.070	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	9.898	5	.078	Not Rejected
K	Maintain adequate records to determine student progress	1.155	5	.949	Not Rejected

TABLE 41 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
B	Determine needs and interests of students	5.487	5	.359	Not Rejected
C	Direct students in applying problem-solving techniques	2.754	5	.738	Not Rejected
H	Obtain feedback about your vocational agriculture programs	5.956	5	.348	Not Rejected
A	Engage students in supervised occupational experiences that are related to their occupational objectives	8.714	5	.121	Not Rejected
A	Evaluate your vocational agriculture program	3.902	5	.564	Not Rejected
A	Develop long-range plans for vocational agriculture program	5.796	5	.327	Not Rejected

TABLE 41 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
D	Plan and direct individualized instructional program	7.835	5	.116	Not Rejected
C	Direct student laboratory experience	10.241	5	.069	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

who had different number of years of teaching experience in vocational agriculture. The table shows that the null hypothesis could not be rejected for all the 15 competencies. Therefore there was no significant relationship between the self-perceived professional education competencies needed by the teachers and their years of teaching experience in vocational agriculture.

Ho:11 There will be no relationship between the self-perceived professional education competencies needed by the vocational agriculture teachers and their interest in participating in professional education inservice activities in the next two years.

The data in Table 42 show the summary of the chi-square tests of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers who had interest and those who had no interest in participating in professional inservice education activities in the next two years. This table shows that the null hypothesis was rejected for only one competency and the null hypothesis was not rejected for the other 14 competencies. Therefore there was a significant relationship between the teachers' interest in participating in professional education inservice activities in the next two years and this competency:

Keep up-to-date professionally

TABLE 42 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS WHO HAD INTEREST AND TEACHERS WHO HAD NO INTEREST IN INSERVICE TRAINING IN THE NEXT TWO YEARS

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	10.969	5	.052	Not Rejected
E	Assist students in developing self-discipline	5.523	5	.355	Not Rejected
J	Keep up-to-date professionally	17.679	5	.0034	Rejected
L	Knowing youth labor rules and regulations	3.978	5	.5526	Not Rejected
F	Evaluate your instructional effectiveness	5.793	5	.327	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	6.822	5	.234	Not Rejected
K	Maintain adequate records to determine student progress	9.489	5	.091	Not Rejected
B	Determine needs and interests of students	5.790	5	.327	Not Rejected

TABLE 42 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct students in applying problem-solving techniques	2.170	5	.834	Not Rejected
H	Obtain feedback about your vocational agriculture programs	4.690	5	.455	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	9.171	5	.103	Not Rejected
A	Evaluate your vocational agriculture program	2.372	5	.796	Not Rejected
A	Develop long-range plans for vocational agriculture program	6.008	5	.305	Not Rejected
D	Plan and direct individualized instructional program	6.507	5	.260	Not Rejected

TABLE 42 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	4.764	5	.445	Not Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

Ho:12 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and the training received in Competency Based Education (CBE).

The summary of the chi-square tests of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers who had received and teachers who had not received training in CBE is presented in Table 43.

From this table it was realized that the null hypothesis was rejected for 2 competencies while the null hypothesis was not rejected for 13 competencies. Therefore there was a significant relationship between the training the teachers received in Competency Based Education and the following 2 competencies:

Keep up-to-date professionally

Direct student laboratory experience

Ho:13 There will be no relationship between the self-perceived professional education competencies needed by the Michigan vocational agriculture teachers and where they received their CBE training.

The summary of the chi-square results of the frequencies of rating the 15 competencies that met the inservice need indicator of 3.00 by teachers' indication of where they had their CBE training is presented in Table 44. The null hypothesis could not be rejected for all the 15 competencies tested. Therefore there was no significant

TABLE 43 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS WHO HAD RECEIVED TRAINING AND TEACHERS WHO HAD NOT RECEIVED TRAINING IN COMPETENCY BASED EDUCATION

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	2.823	5	.727	Not Rejected
E	Asssist students in developing self-discipline	5.268	5	.384	Not Rejected
J	Keep up-to-date professionally	28.669	5	.000	Rejected
L	Knowing youth labor rules and regulations	5.222	5	.389	Not Rejected
F	Evaluate your instructional effectiveness	4.065	5	.540	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	10.849	5	.055	Not Rejected
K	Maintain adequate records to determine student progress	4.459	5	.486	Not Rejected
B	Determine needs and interests of students	1.620	5	.899	Not Rejected

TABLE 43 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct students in applying problem-solving techniques	6.867	5	.231	Not Rejected
H	Obtain feedback about your vocational agriculture program	.479	5	.993	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	5.708	5	.336	Not Rejected
A	Evaluate your vocational agriculture program	8.423	5	.134	Not Rejected
A	Develop long-range plans for vocational agriculture program	3.776	5	.582	Not Rejected
D	Plan and direct individualized instructional program	3.921	5	.561	Not Rejected

TABLE 43 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	12.690	5	.031	Rejected

¹Indicates competency areas: A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

TABLE 44 CHI-SQUARE SUMMARIES OF FREQUENCIES OF RATING THE FIFTEEN MOST NEEDED COMPETENCIES BY TEACHERS' INDICATION OF WHERE THEY RECEIVED THEIR CBE TRAINING

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
L	Knowing legal liability of teachers	11.418	15	.722	Not Rejected
E	Assist students in developing self-discipline	15.507	15	.416	Not Rejected
J	Keep up-to-date professionally	15.103	15	.444	Not Rejected
L	Knowing youth labor rules and regulations	16.095	15	.376	Not Rejected
F	Evaluate your instructional effectiveness	11.371	15	.726	Not Rejected
L	Knowing MIOSHA rules and regulations regarding vocational facilities	13.975	15	.527	Not Rejected
K	Maintain adequate records to determine student progress	13.532	15	.561	Not Rejected
B	Determine needs and interests of students	6.565	15	.969	Not Rejected

TABLE 44 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct students in applying problem-solving techniques	17.792	15	.274	Not Rejected
H	Obtain feedback about your vocational agriculture programs	16.188	15	.370	Not Rejected
K	Engage students in supervised occupational experiences that are related to their occupational objectives	17.557	15	.287	Not Rejected
A	Evaluate your vocational agriculture program	6.715	15	.965	Not Rejected
A	Develop long-range plans for vocational agriculture program	7.889	15	.928	Not Rejected
D	Plan and direct individualized instructional program	10.985	15	.754	Not Rejected

TABLE 44 (Cont'd.)

Area ¹	Competencies	<u>STATISTICAL RESULTS</u>			<u>REMARKS</u>
		Chi-Square	Degrees of Freedom	Significance Level	Null Hypothesis
C	Direct student laboratory experience	17.851	15	.271	Not Rejected

¹Indicates competency areas; A. Program planning, development and evaluation; B. Instructional planning; C. Instructional execution-techniques; D. Instructional execution-individualizing; E. Instructional management; F. Instructional evaluation; H. School community relations; J. Professional role and development; K. Supervised occupational experience; L. Contemporary topics.

relationship between the self-perceived professional education competencies needed by the teachers and where they received their CBE training.

Summary of the Statistical Tests for the Research Hypotheses

In this section the results of the chi-square tests for the thirteen null hypotheses described in Chapter II are discussed. The objective of the tests was to find out if relationships existed between the frequencies of the ratings of the 15 professional education competencies most needed by the Michigan vocational agriculture teachers and the following thirteen characteristics of the teachers: the schools where they taught, age, major when they graduated from college, university from where they graduated, enrollment in vocational agriculture in high school, FFA membership in high school, educational level, type of teaching certification, years of practical work experience before teaching in the areas of agriculture, years of teaching vocational agriculture, interest in participating in professional education inservice activities in the next two years, training in Competency Based Education (CBE) and where the teachers obtained their CBE training.

The null hypotheses were not rejected for six out of the thirteen characteristics of the teachers; that is, there were no significant relationships between the self-perceived professional education competencies

needed by the teachers and six characteristics of the teachers. These characteristics were: major when graduated from college, enrollment in vocational agriculture in high school, FFA membership in high school, years of practical work experience before teaching in the areas of agriculture, years of teaching vocational agriculture and where they received their CBE training.

However, the null hypotheses were partially rejected for the remaining seven characteristics of the teachers and the teachers' perception of their need to improve or update in some competencies; that is, there were significant relationships between:

1. The type of school where the teachers taught and these four competencies: Assist students in developing self-discipline, Keep up-to-date professionally, Knowing youth labor rules and regulations and Knowing MIOSHA rules and regulations regarding vocational facilities.
2. The teachers of different age groups and these two competencies: Knowing legal liability of teachers and Engage students in supervised occupational experiences that are related to their occupational objectives.

3. The university from which the teachers graduated and these three competencies: Assist students in developing self-discipline, Evaluate your instructional effectiveness and Develop long-range plans for vocational agriculture program.
4. The teachers' educational levels and these two competencies: Determine needs and interests of students and Direct student laboratory experience.
5. The teachers of different vocational teaching certification and these three competencies: Knowing legal liability of teachers, Engage students in supervised occupational experiences that are related to their occupational objectives and Direct student laboratory experience.
6. The teachers' interest in participating in professional education inservice activities in the next two years and one competency: Keep up-to-date professionally.
7. The training the teachers received in Competency Based Education and these two competencies: Keep up-to-date professionally and Direct student laboratory experience.

Some of the characteristics of the teachers which showed significant relationship with the professional

education competencies already mentioned, had some of the competencies common to them. These characteristics and the competencies common to them are as follows:

1. The type of school where the teachers taught, the university from which the teachers graduated and competency number 45 -- Assist students in developing self-discipline.
2. The type of school where the teachers taught, the teachers' interest in participating in professional education inservice activities in the next two years, training in Competency Based Education and competency number 75 -- Keep up-to-date professionally.
3. The teachers' educational levels, the type of vocational teaching certificate possessed, training in CBE and competency number 22 -- Direct student laboratory experience.
4. The teachers of different age groups, the type of vocational teaching certificate possessed and competency numbers 78 and 86 -- Engage students in supervised occupational experiences that are related to their occupational objectives; Knowing legal liabilities of teachers.

The cross tabulations of the frequencies of the ratings of the 15 professional education competencies most needed by Michigan vocational agriculture teachers showed the following:

1. The high school teachers expressed a higher need to update in competency 45 -- Assist students in developing self-discipline; competency 93 -- Knowing youth labor rules and regulations; and competency 95 -- Knowing MIOSHA rules and regulations regarding vocational facilities, than the area center teachers. The area center teachers, however, expressed a higher need to update in competency 75 -- Keep up-to-date professionally.
2. Older teachers (above 40 years) expressed less need to update in competency 78 -- Engage students in supervised occupational experiences that are related to their occupational objectives and competency 86 -- Knowing legal liability of teachers, than younger teachers (40 years and under).
3. Teachers who were MSU graduates expressed a higher need to update in competency 8 -- Develop long-range plans for the vocational programs; competency 45 -- Assist students in developing self-discipline; and competency 54 -- Evaluate your instructional effectiveness, than teachers who were non-MSU graduates.

4. Teachers who were non-college graduates (teachers with less than bachelor's degree) expressed less need to update in competency 11 -- Determine needs and interests of students; and competency 22 -- Direct student laboratory experience, than teachers who were college graduates (bachelor's and above bachelor's degree).
5. Teachers who had permanent vocational teaching certificate (FVA and SSC) expressed a higher need to update in competency 22 -- Direct student laboratory experience, while teachers who had no permanent vocational teaching certificate (AVA, TVA and SSP) expressed a higher need to update in competency 78 -- Engage students in supervised occupational experiences that are related to their occupational objectives; and competency 86 -- Knowing legal liability of teachers.
6. Teachers who had interest in participating in inservice training activities in the next two years expressed a higher need to update in competency 75 -- Keep up-to-date professionally; than teachers who had no interest in inservice training activities in the next two years.

7. Teachers who had received training in CBE expressed a higher need to update in competency 22 -- Direct student laboratory experience; and competency 75 -- Keep up-to-date professionally; than teachers who had received no training in CBE.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the problem, need, purpose, objectives, procedure of the study as well as the major findings, discussion, conclusion and recommendations are presented.

Statement of the Problem

The major problem that necessitated this study was the limited amount of up-to-date information on the inservice education needs of all the vocational agriculture teachers in Michigan. This made it difficult for teacher educators to plan effective inservice education programs for the teachers.

Need for the Study

The duties and responsibilities of vocational agriculture teachers had increased tremendously. This along with many recent changes in vocational agriculture curricula necessitated a need for periodic reappraisal of the professional education competencies needed by these teachers. There was a need to identify the competencies judged important by the Michigan vocational

agriculture teachers themselves and the teacher educators who work with them. The teacher educators and supervisors in agricultural education needed this information for planning and conducting more effective inservice teacher education programs for the teachers of vocational agriculture in the state.

Purposes of the Study

The primary purposes of the study were (a) to ascertain the self-perceived professional education competencies needed by the vocational agriculture teachers in Michigan and (b) to analyze the relationships between these needs and various characteristics of the teachers.

Objectives of the Study

The study was designed to ascertain the educational and occupational background information of the vocational agriculture teachers in Michigan and to determine the self-perceived professional education competencies needed by these teachers.

Research Hypotheses

Research Hypotheses were formulated to determine if there was any significant relationship between the self-perceived professional education competencies needed by the teachers and their educational and occupational characteristics.

Design of the Study

The population of this study consisted of all the 211 vocational agriculture teachers in Michigan during the 1979-80 academic year. A mail questionnaire was used to collect data from these teachers. Part I consisted of 16 questions pertaining to the educational and occupational backgrounds of the respondents. Part II questioned the respondents on their need to update or further improve in the 95 selected competencies that several professionals in Agricultural Education believed were important in planning and implementing effective vocational agriculture programs. The following rating scale was used: 0 represents does not apply, 1 represents none, 2 represents low, 3 represents medium, 4 represents high and 5 represents very high.

Descriptive statistics were used to analyze the data in Parts I and II of the questionnaire and Chi-square statistics were used to find if there was any significant relationship between the independent variables (the characteristics of the respondents) and the dependent variables (the professional education competencies needed by these respondents).

Major Findings

Characteristics of the Michigan Vocational Agriculture Teachers

The following findings resulted from the analysis of the independent variables:

1. Twenty-two percent of the teachers were employed in the Area Vocational Centers while seventy-eight percent were employed in High Schools.
2. The largest age group was the 31-40 year old group. Seventy percent of the teachers were 40 years of age or less.
3. Seventy-two percent of the teachers had Agricultural Education as their major when they graduated from college.
4. A majority of the teachers (82 percent) graduated from Michigan State University.
5. Sixty-two percent of the teachers were enrolled in vocational agriculture in high school.
6. Sixty percent of the teachers were FFA members in high school.
7. A majority of the teachers (97 percent) possessed a minimum of a Bachelor's degree while fifty percent possessed a Master's degree.

8. Nineteen teachers (10 percent) possessed Annual Vocational Authorization, fourteen teachers (7 percent) possessed Temporary Vocational Authorization, fifteen teachers (8 percent) possessed Full Vocational Authorization, forty-nine teachers (25 percent) possessed Vocational Endorsement of Secondary Provisional Certificate while one hundred and two teachers (51 percent) possessed Vocational Endorsement of Secondary Continuing Certificate.
9. The following subject matter areas were arranged on the basis of the number of teachers involved and the greatest percent of teaching time these teachers spent on them: Agricultural production, Ornamental horticulture, Non-Agricultural classes, Agricultural mechanics, Agricultural resources, Forestry, Agricultural supplies and Agricultural products.
10. Fifty-two percent of the teachers indicated they had ten years or more of practical work experience prior to teaching.
11. Sixty-two percent of the teachers had more than 6 years experience in teaching vocational agriculture. The mean number of years of teaching

experience in vocational agriculture for all the teachers was 11 years.

12. Eighty-six percent of the teachers expressed interest in participating in professional education inservice activities in the next two years.
13. Seventy-five percent of the teachers had training in Competency-Based Education (CBE).
14. Thirty-seven percent of the teachers who had CBE training received this training from universities, twenty-nine percent received it from Local Education Agencies while nine percent received it from other sources.

Professional Education Inservice Needs

1. The fifteen professional education competencies reported to be most needed for updating by all the Michigan vocational agriculture teachers are as follows:

- Knowing legal liability of teachers
- Assist students in developing self-discipline
- Keep up-to-date professionally
- Knowing youth labor rules and regulations
- Evaluate your instructional effectiveness
- Knowing MIOSHA rules and regulations regarding vocational facilities
- Maintain adequate records to determine student progress

Determine needs and interests of students

Direct students in applying problem-solving techniques

Obtain feedback about your vocational agriculture programs

Engage students in supervised occupational experiences that are related to their occupational objectives

Evaluate your vocational agriculture program

Develop long-range plans for vocational agriculture programs

Plan and direct individualized instructional program

Direct student laboratory experience

2. Fifteen competencies that were rated lowest

as needed for updating by the respondents are as follows:

Establish FFA chapter

Develop a personal philosophy concerning FFA

Employ the team teaching approach

Supervise FFA activities

Develop a lesson plan

Gather student data using formal data collection techniques

Organize an occupational advisory committee

Conduct group discussions, panel discussions, and symposiums

Guide participation in FFA award programs and contests

Gather student data through personal contact

Direct field trips

Providing school-based job placement services

Utilize paraprofessionals effectively

Prepare student FFA members for leadership roles

Assist students in developing and financing a yearly program of activities.

3. The following are the top six ranked competency areas in order of the teachers' needs:

Supervised Occupational Experience

Professional Role and Development

Contemporary Topics

Instructional Evaluation

School Community Relations

Instructional Execution-Individualizing

4. The two least needed competency areas were Guidance and Placement and Future Farmers of America. Fifty percent of all the competencies under the competency area of Guidance and Placement and 100 percent of the competencies listed under FFA were among the fifteen competencies rated as least needed by all the teachers.

5. Teachers in the high schools reported that they needed updating in more competencies (21 competencies)

than teachers in the area vocational centers who reported that they needed updating in 13 competencies.

6. Teachers who were 25 years or less needed the largest number of competencies (41) when compared with other age groups. Teachers who were between ages of 26-30 and 31-40 needed 11 and 30 competencies respectively. Data from the other age groups revealed that the competency needs increased as teachers advanced in age.

7. Teachers with majors in agricultural education needed updating in 17 competencies compared with 25 competencies needed by teachers with non-agricultural education majors.

8. Teachers who were MSU graduates required updating in 18 competencies while their non-MSU graduate counterparts required updating in 14 competencies.

9. Teachers who were enrolled in vocational agriculture in high school required updating in 19 competencies compared with 16 competencies required by their counterparts who did not enroll.

10. Teachers who were FFA members in high school needed updating in 21 competencies compared with 12 competencies needed by teachers who were not FFA members in high school.

11. Teachers with Bachelor's degrees required updating in 27 competencies compared with 13 competencies needed by teachers with higher degrees. Teachers with less than Bachelor's degree, however, reported that they needed updating in 10 competencies.

12. The largest number of competencies needed were reported by teachers who did not have permanent vocational teaching certificates in agriculture, that is teachers who possessed Annual vocational authorization, Temporary vocational authorization and Vocational endorsement of secondary provisional certificates.

13. Teachers who had 10 years or more of practical work experience before teaching perceived that they needed to update in more competencies than teachers with 4-9 years of practical work experience obtained prior to teaching.

14. Teachers who had 6 years or less of teaching experience needed updating in 25 competencies while the teachers with 6 years or more of teaching experience needed updating in 15 competencies.

15. Teachers who had interest in participating in inservice training activities in the next two years needed updating in 24 competencies while teachers without interest needed assistance in only three competencies.

16. Teachers who had participated in CBE training needed 16 competencies while teachers who had not participated in CBE training needed 18 competencies.

Further statistical analysis of the data by using Chi-square test to determine if there were relationships between the thirteen independent variables (characteristics of the teachers) and the dependent variables (the competencies most needed) revealed the following:

1. There were no significant relationships between the frequencies of the ratings of the 15 professional education competencies most needed by the Michigan vocational agriculture teachers and the following characteristics of the teachers: major when graduated from college, enrollment in vocational agriculture in high school, FFA membership in high school, years of practical work experience before teaching in the areas of agriculture, years of teaching vocational agriculture and where the teachers received their CBE training. However, there were significant relationships between:
 - a. The type of school where the teachers taught and these four competencies: Assist students in developing self-discipline, Keep up-to-date professionally, Knowing youth labor

rules and regulations and Knowing MIOSHA rules and regulations regarding vocational facilities.

- b. The teachers of different age groups and these two competencies: Knowing legal liability of teachers and Engage students in supervised occupational experiences that are related to their occupational objectives.
- c. The university from which the teachers graduated and these three competencies: Assist students in developing self-discipline, Evaluate your instructional effectiveness and Develop long-range plans for vocational agriculture program.
- d. The teachers' educational levels and these two competencies: Determine needs and interests of students and Direct student laboratory experience.
- e. The teachers of different vocational teaching certification and these three competencies: Knowing legal liability of teachers, Engage students in supervised occupational experiences that are related to their occupational objectives and Direct student laboratory experience.

- f. The teachers' interest in participating in professional education inservice activities in the next two years and one competency: Keep up-to-date professionally.
- g. The training the teachers received in Competency Based Education and these two competencies: Keep up-to-date professionally and Direct student laboratory experience.

Discussion

The teachers in Area Vocational Centers expressed that they needed certain competencies which were not reported as needed by the high school teachers. These competencies were:

- Prepare teacher-made instructional materials
- Prepare instruction for gifted students
- Test student psychomotor (skill) performance
- Assess student attitudes

Since the area vocational centers were centrally located facilities designed and equipped to provide vocational education programs for two or more schools it is possible that these are some of the major competencies which these teachers are required to perform for students from different local agencies. This showed that these

teachers realized their deficiency in these areas which are very essential for them to have a successful instructional program.

It was found that as the teachers age increased from 41 to 60 years the competencies needed increased (See Table 20). As earlier mentioned this might be due to age factor. It also appeared that as the teachers advanced in age they tended to give priority to what they might have missed in earlier training. An evidence of this assumption is very apparent in the way the teachers of different age groups rated the competency area of FFA (See Appendix A, Table 50). It must be recollected that FFA was the competency area which had been earlier reported in this study to have the least mean score rating or to be least needed among all the 12 competency areas by all the teachers. When the rating of this competency area (FFA) was compared for teachers of different age groups it was found that the oldest teacher group expressed the greatest need to update in FFA.

The findings in this study also support McGhee (1967) who in his study investigated the professional and technical needs of vocational agriculture teachers as they related to vocational agriculture programs in West Virginia. He found the following areas among the greatest

needs of the teachers for assistance in professional development: (a) occupational experience programs, (b) public relations. These two competency areas also contributed 3 competencies to the 15 top rated competencies needed by the Michigan vocational agriculture teachers. Again, the findings in this study that the teachers did not require assistance for updating in the competency area of FFA also agreed with McGhee who observed a similar result from his West Virginia study.

This study revealed that professionally trained teachers (teachers with agricultural education majors) required updating in less number of competencies than teachers with non-agricultural education majors. This finding agrees with the finding of Moore and Bender (1975) who surveyed the professional education competency needs of vocational agriculture teachers in Ohio. This study also showed that non-college graduates needed less number of competencies than the college graduates which contradicts the researchers expectation. However, Moore and Bender (1975) obtained results that agreed with this expectation that non-college graduates required more competencies than the college graduates. Moore and Bender's results were obtained from 43 non-college graduate teachers as opposed to seven non-college graduates

who participated in this study. The ratings obtained from Moore and Bender's larger group would be more reliable. One could assume from this that the few non-college graduates involved in this study did not have an adequate concept of their role and responsibilities as vocational agriculture teachers.

This study also showed that the teachers who were members of FFA in high school perceived that they needed updating in more competencies than teachers who were non-FFA members in high school. As discussed earlier, this is an indication that membership in FFA in high school had no influence on the teachers' perception of their competency needs. This finding contradicts the report of Hylton and Lee (1979) who found that past membership of FFA in high school helped vocational agriculture/agribusiness teachers in the Southern region of the United States. One can argue, however, that FFA membership in high school had served to expose the Michigan vocational agriculture teachers to the realization of their professional roles and had helped in the development of their interest in these roles.

The investigation on the influence of number of years of practical work experience in areas of agriculture before teaching on the self-perceived competency

needs showed that Michigan vocational agriculture teachers with shortest number of years of practical work experience before teaching needed the largest number of competencies for updating than the teachers who had 4-9 years of teaching experience. This result, however, disagrees with that reported by Hylton and Lee (1979) that the number of years of practical work experience in the areas of agriculture/agribusiness before teaching had little effect on the self-perceived teaching effectiveness of vocational agriculture/agribusiness teachers in the Southern region of the United States. On the other hand, the finding in this study that Michigan vocational agriculture teachers with 10 years or more of practical work experience before teaching needed more competencies than those teachers with 4-9 years of experience agreed with Hylton and Lee's report.

Conclusions

It can be concluded from the findings of this study that there were no significant relationships between the frequencies of the ratings of the 15 professional education competencies most needed by the Michigan vocational agriculture teachers and six characteristics of the teachers. These characteristics were: major when graduated from college, enrollment in vocational

agriculture in high school, FFA membership in high school, years of practical work experience before teaching in the areas of agriculture, years of teaching vocational agriculture and where they received their CBE training. However, there were significant relationships between:

1. The type of school where the teachers taught and these four competencies: Assist students in developing self-discipline, Keep up-to-date professionally, Knowing youth labor rules and regulations and Knowing MIOSHA rules and regulations regarding vocational facilities.
2. The teachers of different age groups and these two competencies: Knowing legal liability of teachers and Engage students in supervised occupational experiences that are related to their occupational objectives.
3. The university from which the teachers graduated and these three competencies: Assist students in developing self-discipline, Evaluate your instructional effectiveness and Develop long-range plans for vocational agriculture program.
4. The teachers' educational levels and these two competencies: Determine needs and interests of students and Direct student laboratory experience.

5. The teachers of different vocational teaching certification and these three competencies: Knowing legal liability of teachers, Engage students in supervised occupational experiences that are related to their occupational objectives and Direct student laboratory experience.
6. The teachers' interest in participating in professional education inservice activities in the next two years and one competency: Keep up-to-date professionally.
7. The training the teachers received in Competency-Based Education and these two competencies: Keep up-to-date professionally and Direct student laboratory experience.

A few of the characteristics of the teachers that can be used for grouping the teachers for the purpose of inservice training are: the type of school where the teachers were employed, major when graduated from college, educational level and certification.

Recommendations

The following recommendations are made on the basis of the major findings from this study and some theoretical knowledge of the diffusion of innovations. The use of the

theoretical knowledge in combination with the self-perceived professional education competencies reported to be needed by the teachers is justified by the fact that in order to set up a training program, there are some other aspects besides the competencies needed by the teachers that should be considered to have the new methods implemented in the classrooms. Such aspects include a consideration of whether the self-perceived needs of the teachers should be the sole basis for making recommendations for inservice training for these teachers. If the recommendations are made only in terms of these needs, one has to consider the implications for these recommendations in terms of communication. An example of such implication is that if the inservice training needs are not accurately perceived by the teachers, then it is difficult to know what inservice is needed. It is also difficult to get them convinced that the inservice training program is designed to suit their needs. Therefore, in order to make the inservice training program meaningful and effective, the recommendations on the type of inservice training to give to the teachers should also include the following communication strategies:

- a. Plans for involving the largest number possible in the inservice activities.

- b. The communication tactics to use in getting the ideas across to the teachers during the inservice training.
- c. How to make the teachers realize that the inservice training programs planned for them are compatible with their needs.

1. If an inservice education training program should be planned for all the Michigan vocational agriculture teachers, courses, workshops, seminars, etc.; should be designed to develop the following 15 competencies which these teachers reported they needed most for updating:

Knowing legal liability of teachers

Assist students in developing self-discipline

Keep up-to-date professionally

Knowing youth labor rules and regulations

Evaluate your instructional effectiveness

Knowing MIOSHA rules and regulations regarding vocational facilities

Maintain adequate records to determine student progress

Determine needs and interests of students

Direct students in applying problem-solving techniques

Obtain feedback about your vocational agriculture programs

Engage students in supervised occupational experiences that are related to their occupational objectives.

Evaluate your vocational agriculture program

Develop long-range plans for vocational agriculture program

Plan and direct individualized instructional program

Direct student laboratory experience

2. Inservice activities for all the Michigan vocational agriculture teachers should be organized within the following 10 competency areas from which the 15 competencies most needed by all the Michigan vocational agriculture teachers came:

- a. Supervised Occupational Experience
- b. Professional Role and Development
- c. Contemporary Topics
- d. Instructional Evaluation
- e. School Community Relations
- f. Instructional Execution-Individualizing
- g. Instructional Management
- h. Program Planning, Development and Evaluation
- i. Instructional Planning
- j. Instructional Execution - Techniques

When it is feasible to plan and organize inservice education training programs for Michigan vocational agriculture teachers based on any of the educational, occupational or any other characteristics involved in this study, the following criteria may be used by the planners as guidelines:

1. If there exists only a narrow difference (6 competencies or less) in the total number of competencies reported to be needed by the different teacher groups within any particular teacher characteristic but a reasonably large number of the competencies (as judged by the planners) differ from each other, then inservice training program may be planned separately for the different teacher groups under that particular characteristic concerned. An example of such characteristic that fell under this category in this study was "the university from which the teachers graduated". The teachers who were MSU graduates required updating in 18 competencies while those who were non-MSU graduates required updating in 14 competencies. The difference in the number of competencies required by these two groups were four. Ten of the 18 competencies required by teachers who were MSU graduates were unique to them. Eight competencies were common to both groups. Therefore when using this characteristic (the university from which the teachers graduated) as a basis for grouping the teachers for inservice training, the teachers who were MSU graduates should be given inservice training in the following ten competencies that were unique to them:

1. Develop long-range plans for the vocational programs

2. Evaluate your vocational agriculture programs
3. Direct student laboratory experience
4. Direct students in applying problem-solving techniques
5. Plan and direct individualized instructional program
6. Establish performance standards for students
7. Evaluate your instructional effectiveness
8. Engage students in supervised occupational experiences that are related to their occupational objectives
9. Engage students in supervised occupational experiences that are appropriate in light of their ability.
10. Knowing youth labor rules and regulations

The teachers who were non-MSU graduates should be given inservice training in the following six competencies that were unique to them:

1. Provide instruction for disadvantaged students
2. Assess student attitudes
3. Develop a school community relations plan for your vocational agriculture program
4. Develop brochures to promote your vocational agriculture program
5. Prepare displays to promote your vocational agriculture program
6. Select and evaluate training stations to assist students in obtaining desired occupational competencies

The two teacher groups could be given the same inservice training in the following eight competencies that were found common to them:

1. Determine needs and interests of students
2. Assist students in developing self-discipline
3. Give presentations to promote your vocational agriculture program
4. Obtain feedback about your vocational agriculture program
5. Keep up-to-date professionally
6. Maintain adequate records to determine student progress
7. Knowing legal liability of teachers
8. Knowing MIOSHA rules and regulations regarding vocational facilities

2. When there exists a narrow difference (6 or less) in the number of competencies needed by the different teacher groups within any particular teacher characteristic but many of the competencies are found to be common to all the teacher groups, that characteristic will not be suitable for dividing the teachers into groups for inservice training. The characteristics that fell under this category are: Enrollment in vocational agriculture in high school and CBE training.

Teachers who were enrolled in vocational agriculture in high school reported that they needed updating in

19 competencies while the teachers who were not enrolled in vocational agriculture in high school reported that they needed updating in 16 competencies (See Table 23). The difference in the number of competencies needed by these two groups was narrow and thirteen competencies were found to be common to both groups. Therefore it is recommended that these two teacher groups should be given the same inservice training. Again teachers who had received training and those who had not received training in competency based education needed updating in 16 and 18 competencies respectively (See Table 31). The difference in the number of competencies needed by these two groups was also narrow and 12 competencies were found to be common to both groups. It is also recommended that teachers who had received CBE training and those who had not received CBE training should be given the same inservice training.

3. When (a) there exists a wide difference (7 competencies or more) in the number of competencies needed by the different teacher groups within any particular teacher characteristic, and (b) if many of the competencies are common to all the groups: then an inservice education training program may be planned for all the teachers together based on the competencies common to them while separate inservice education training program would be required for the

separate groups to meet the specific competency needs not common to all the groups.

Characteristics of the teachers that came under this category include: type of school where the teachers were employed, major at graduation from college and FFA membership in high school. The researcher is of the opinion that FFA membership in high school should not be used as a basis for grouping the teachers for inservice training program because some teachers may criticize the reliance on such a past experience which those who lacked it might have also gained during their teaching career through their interaction with the students and numerous activities. As shown in Table 19, area center teachers needed updating in 13 competencies while high school teachers needed updating in 21 competencies. The difference in the number of competencies needed by these two groups was great. Nine competencies were common to both groups. Four competencies were unique to the area center teachers while 12 competencies were unique to the high school teachers. It is therefore recommended that the same inservice training should be jointly conducted for the area center teachers and high school teachers for the following nine competencies that were common to both groups:

1. Develop long-range plans for the vocational agriculture program
2. Direct student laboratory experience
3. Direct student in applying problem-solving techniques
4. Plan and direct individualized instructional program
5. Assist students in developing self-discipline
6. Evaluate your instructional effectiveness
7. Obtain feedback about your vocational agriculture program
8. Keep up-to-date professionally
9. Knowing legal liability of teachers

Separate inservice training would be required for the area center teachers for the following four competencies:

1. Prepare teacher-made instructional materials
2. Prepare instruction for gifted students
3. Test student psychomotor (skill) performance
4. Assess student attitudes

The high school teachers would need to be given inservice training on the following competencies:

1. Evaluate your vocational agriculture programs
2. Determine needs and interests of students
3. Develop a school community relations plan for your vocational agriculture program
4. Give presentations to promote your vocational agriculture program

5. Develop brochures to promote your vocational agriculture program
6. Prepare displays to promote your vocational agriculture program
7. Engage students in supervised occupational experiences that are related to their occupational objectives
8. Engage students in supervised occupational experiences that are appropriate in light of their ability
9. Engage students in supervised occupational experiences that are appropriate in light of their place of residence
10. Maintain adequate records to determine student progress
11. Knowing youth labor rules and regulations
12. Knowing MIOSHA rules and regulations regarding vocational facilities

Again as shown in Table 21, the teachers with a major in agricultural education needed 17 competencies compared with 25 competencies needed by teachers with non-agricultural education major. The difference in the number of competencies needed by the two groups was great. Sixteen competencies were common to both groups. Nine competencies were unique to the teachers who were non-agricultural education majors while only one competency was unique to teachers with a major in agricultural education. Therefore, it is recommended that the same inservice

training should be jointly conducted for the teachers with or without a major in agricultural education for the following competencies:

1. Develop long-range plans for the vocational agriculture program
2. Evaluate your vocational agriculture program
3. Determine needs and interests of students
4. Direct student laboratory experience
5. Direct students in applying problem-solving techniques
6. Plan and direct individualized instructional programs
7. Assist students in developing self-discipline
8. Evaluate your instructional effectiveness
9. Give presentations to promote your vocational agriculture program
10. Obtain feedback about your vocational agriculture program
11. Keep up-to-date professionally
12. Engage students in supervised occupational experiences that are related to their occupational objectives
13. Maintain adequate records to determine student progress
14. Knowing legal liability of teachers
15. Knowing youth labor rules and regulations
16. Knowing MIOSHA rules and regulations regarding vocational facilities

Separate inservice training would be required for the teachers who were non-agricultural education majors for the following nine competencies:

1. Prepare teacher-made instructional materials
2. Use subject matter experts to present information
3. Maintain a filing system of teaching resources
4. Provide for safety needs of students
5. Assess student attitudes
6. Develop a school-community relations plan for your vocational agriculture program
7. Prepare news releases and articles concerning your vocational agriculture program
8. Engage students in supervised occupational experiences that are appropriate in light of their ability
9. Engage students in supervised occupational experiences that are appropriate in light of their place of residence

The only competency that was unique to the teachers with a major in agricultural education should also be given attention in the inservice training of this teacher group. This competency is: Prepare displays to promote your vocational agriculture program.

4. When (a) there exists a wide difference (7 competencies or more) in the number of competencies needed by the different teacher groups within any particular teacher characteristic; and (b) if many of the competencies are not common to all the teacher groups: then

inservice education training programs may be planned separately for each teacher group. It may be necessary to plan an inservice training program for any two or more groups that happen to have a reasonable number of competencies common to them within the same teacher characteristic with many sub-divisions of teacher groups. This situation may apply particularly to the following characteristics: Educational levels and type of vocational teaching certificates of the teachers.

Teachers with less than bachelors degree reported that they needed updating in 10 competencies while teachers with bachelors and teachers with higher degrees needed updating in 27 and 13 competencies respectively (See Table 25). Many of these competencies were not common to all the three groups hence it may be necessary to plan separate inservice training program for each teacher group based on the competencies unique to each group. The competencies that were unique to teachers with less than bachelor's degree were as follows:

1. Develop vocational agriculture program goals and objectives
2. Direct field trips
3. Use subject matter experts to present information
4. Present information through audio-visual equipment

5. Develop self-contained instructional modules
6. Determine student grades

The competencies that were unique to teachers who possessed bachelor's degree were:

1. Direct students in instructing other students
2. Maintain a filing system of teaching resources
3. Establish performance standards for students
4. Assess student attitudes
5. Develop a school community relations plan for your vocational agriculture program
6. Give presentations to promote your vocational agriculture program
7. Develop brochures to promote your vocational agriculture program
8. Prepare displays to promote your vocational agriculture program
9. Engage students in supervised occupational experiences that are related to their occupational objectives
10. Engage students in supervised occupational experiences that are appropriate in light of their ability
11. Engage students in supervised occupational experiences that are appropriate in light of their place of residence
12. Select and evaluate training stations to assist students in obtaining desired occupational competencies
13. Develop training plan which includes essential competencies and experiences that are to be acquired during the program

14. Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program

It may also be necessary to plan a joint inservice training program for teachers with bachelor's degree and teachers with higher degrees on the 13 competencies common to them. These competencies were as follows:

1. Develop long-range plans for the vocational agriculture program
2. Evaluate your vocational agriculture program
3. Determine needs and interests of students
4. Direct student laboratory experience
5. Direct students in applying problem-solving techniques
6. Assist students in developing self-discipline
7. Evaluate your instructional effectiveness
8. Obtain feedback about your vocational agriculture program
9. Keep up-to-date professionally
10. Maintain adequate records to determine student progress
11. Knowing legal liability of teachers
12. Knowing youth labor rules and regulations
13. Knowing MIOSHA rules and regulations regarding vocational facilities

As shown in Tables 26 and 27 teachers who did not have permanent teaching certificates (AVA, TVA and SSP) needed updating in 37, 29 and 27 competencies respectively.

Teachers with Full vocational authorization (FVA) and Vocational endorsement of secondary continuing certificate (SSC) needed updating in 15 and 14 competencies respectively. Since many of the competencies were not common to all the teacher groups it is recommended that inservice education training program be planned separately for each teacher group on the basis of the competencies unique to each teacher certification group. The twelve competencies that were unique to teachers with Annual vocational authorization in agriculture (AVA) were:

1. Develop vocational agriculture program goals and objectives
2. Develop a course of study
3. Employ simulation techniques
4. Employ reinforcement techniques
5. Use subject matter experts to present information
6. Present information through an illustrated talk
7. Present information through audio-visual equipment
8. Provide for safety needs of students
9. Manage the vocational agriculture lab/classroom facilities
10. Test student cognitive (knowledge) performance
11. Determine student grades
12. Assist students in applying for employment or further education

Seven competencies unique to teachers with Temporary vocational authorization in agriculture (TVA) were:

1. Conduct a community survey to determine employment demands and student interests
2. Stimulate learning through brainstorming and buzz groups
3. Estimate instructional resource needs
4. Purchase supplies and equipment (specification and bids)
5. Organize the vocational agriculture lab/classroom facilities
6. Prepare news releases and articles concerning your vocational agriculture program
7. Assist students in developing a formal training agreement with the employer

Two competencies unique to teachers with Vocational endorsement of secondary provisional certificate in agriculture (SSP) were:

1. Maintain a filing system of teaching resources
2. Articulating secondary school vocational program with post-secondary vocational education

Four competencies unique to teachers with Full vocational authorization were:

1. Provide instruction for disadvantaged students
2. Provide instruction for gifted students
3. Utilizing human relation skills
4. Teaching employability skill topics (job applications, interviewing, etc.)

It may be necessary to combine all the five certification groups for the four competencies common to all of them during the inservice training. These are as follows:

1. Assist students in developing self-discipline
2. Evaluate your instructional effectiveness
3. Obtain feedback about your vocational agriculture program
4. Knowing legal liability of teachers
5. Characteristics such as: Age of the teachers, teachers' interest in inservice education training in the next two years, practical work experience before teaching in the areas of agriculture and number of years of teaching experience are not likely to be accepted by all the teachers as suitable for grouping the teachers for inservice training programs. Therefore the use of such characteristics for the purpose of grouping the teachers should be avoided.

Ways to Increase Participation in Inservice Training Programs

6. The inservice education programs planned for the teachers should receive top level support from the administration. As reported by Helsel (1972) administrators are crucial in introducing innovations at the local level. Zaltman and Duncan (1977) also suggested that in order to have effective innovation, there should be top level support in the system for the proposed change or innovation otherwise resistance will be encountered. Adams (1974) observed the advantages of top level support for teachers inservice training when teachers and

administrators from the same school experienced the process cooperatively. Therefore, it is recommended that the administrators of the schools where the teachers are employed should give them the opportunity, cooperation and other necessary support to attend the inservice training programs.

7. It is recommended that incentives should be provided to teachers who are participants of the inservice training. According to Zaltman and Duncan (1977) the incentive must be attractive to the participants as a way of reducing resistance. In this particular case, the incentive could include granting credits for such activities which make for better classroom teachers.

8. The inservice training should be offered to the teachers at a place and a length of time convenient for the participants. According to Havelock (1973) the change agent should adapt his strategy to the specific situational factors of time, place and circumstances. For example, the kind of tactics that can be employed in teaching a course or conducting a weekend workshop may be inappropriate for a one-hour slot in a convention program.

9. Such characteristics of the teachers as: the type of school where they are employed, major at graduation from college, educational level and type of vocational

teaching certificate they possessed must be considered in conducting various sessions of the inservice training. This is important because each group is likely to have some distinct modes of thinking, feeling and acting that need to be considered otherwise one may find acceptance of the innovation very difficult. Adam (1974) stated that a very important ingredient to successful teaching is the teacher's own frame of reference, that is, the manner in which a teacher perceives himself is important.

Effective Communication Strategies

10. It is recommended that the inservice training for the teachers should be conducted in form of seminars, workshops and conferences in addition to formal lectures. These should be organized in such a way that they give the teachers an opportunity for individual and group activities, open discussions, interactions and exchange of ideas among themselves and the teacher educators conducting the inservice training programs. Atherton (1970) suggested that the people to whom a change is introduced should be allowed to voice out their concerns freely so that they may evolve procedures for resolving these matters. Again Adams (1974) reported that it had been found that in an inservice workshop, confidence, trust, support and personal experiences play an important role

in an individual teacher's ability to decide to assume a new attitude toward learning and to experiment with new ideas.

11. The teacher educators should focus attention on the essentials during the inservice training. These essential aspects should be made compatible with the teachers existing values, past experiences and needs. Havelock (1973) suggested that the change agent should use the knowledge of the group for whom the innovation is planned to carry out an effective strategy for gaining group acceptance. Rogers and Shoemaker (1971) have emphasized that the more an innovation is perceived as compatible by its receivers the faster the rate of its adoption.

12. The relevant facts about the inservice training should be conveyed to the teachers simply, clearly and accurately. Rogers and Shoemaker (1971) have reported that the more the complexity of an innovation to its receivers the slower the rate of its adoption. Atherton (1970) also reported that the key to success of the change effort lies in the effectiveness with which the new ideas are communicated.

13. At the end of the inservice training, the teacher educators should allow the teachers to provide feedback as to the use and effectiveness of the inservice training

provided. The teachers' comments and suggestions should also be carefully considered in order that necessary modification can be made for similar future programs.

A General Recommendation

The constant increase in the responsibilities and duties of the vocational agriculture teachers and the continuous changes in the society and school curricula necessitated a need for periodic reappraisal of the professional competency needs of the teachers. This means that teacher educators need to place increased attention on inservice education training programs for the teachers if these teachers are expected to live up to societal expectations. It is therefore necessary that the teacher educators of agricultural education in Michigan should continue to evaluate the professional education competency needs of the Michigan vocational agriculture teachers. This will enable the teacher educators to update the inservice education training programs according to the teachers' needs and societal needs.

Recommendations for Further Study

1. In this study, only the professional education competencies were investigated. The study excluded other competencies such as technical knowledge and skills which are among the essential qualifications

that vocational agriculture teachers should possess. The researcher recognized the need for further research to identify the technical competency needs of vocational agriculture teachers for each subject matter area taught in vocational agriculture programs in Michigan. Two respondents made suggestions to this effect on the survey instrument sent to them. Their statements are quoted respectively: (1) "We need Landscaping Hands on Workshops" (2) "In the field as a teacher, the most important inservice needed involves around the new agricultural techniques such as Castration, Welding, Solar power, etc."

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APPENDICES

APPENDIX A
SUPPLEMENTARY TABLES

TABLE 45 MICHIGAN VOCATIONAL AGRICULTURE TEACHERS' RATING OF THEIR NEED TO UPDATE OR FURTHER IMPROVE IN THE PROFESSIONAL EDUCATION COMPETENCIES ACCORDING TO CATEGORIES

	MEAN SCORES	STANDARD DEVIATION
A. Program Planning, Development and Evaluation		
1. Evaluate your vocational agriculture program	3.060	1.188
2. Develop long-range plans for the vocational agriculture program	3.056	1.209
3. Develop vocational agriculture program goals and objectives	2.784	1.333
4. Maintain an occupational advisory committee	2.758	1.322
5. Conduct a community survey to determine employment demands and student interests	2.697	1.325
6. Conduct a student follow-up study	2.548	1.353
7. Report the findings of a community survey	2.518	1.348
8. Conduct an occupational analysis	2.477	1.214
9. Develop a course of study	2.477	1.263
10. Organize an occupational advisory committee	2.255	1.491
B. Instructional Planning		
11. Determine needs and interests of students	3.102	1.035
12. Prepare teacher-made instructional materials	2.919	1.149

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
13. Select student instructional materials	2.716	1.200
14. Develop student performance objectives	2.603	1.176
15. Develop a unit of instruction	2.427	1.186
16. Develop a lesson plan	2.157	1.180
C. Instructional Execution-Techniques		
17. Direct students in applying problem-solving techniques	3.082	1.134
18. Direct student laboratory experience	3.046	1.208
19. Direct students in instructing other students	2.859	1.013
20. Employ simulation techniques	2.792	1.084
21. Use subject matter experts to present information	2.782	1.138
22. Employ the project method technique	2.763	1.246
23. Employ reinforcement techniques	2.672	1.075
24. Demonstrate a concept or principle	2.601	1.056
25. Present information through audio-visual equipment	2.533	1.136
26. Demonstrate a manipulative skill	2.525	1.062

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
27. Present information through an illustrated talk	2.490	1.116
28. Employ oral questioning techniques	2.442	1.066
29. Stimulate learning through brainstorming and buzz groups	2.424	1.003
30. Direct field trips	2.362	1.235
31. Conduct group discussions, panel discussions and symposiums	2.274	1.062
32. Employ the team teaching approach	1.980	1.392
D. Instructional Execution-Individualizing		
33. Plan and direct individualized instructional program	3.051	1.216
34. Develop self-contained instructional modules	2.883	1.262
35. Provide instruction for gifted students	2.844	1.404
36. Prepare and utilize instruction sheets	2.761	1.199
37. Provide instruction for disadvantaged students	2.697	1.254
38. Direct programmed instruction	2.603	1.235
39. Provide instruction for handicapped students	2.437	1.337

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
E. Instructional Management		
40. Assist students in developing self-discipline	3.242	1.218
41. Maintain a filing system of teaching resources	2.950	1.294
42. Organize the vocational agriculture lab/classroom facilities	2.793	1.349
43. Provide for safety needs of students	2.783	1.286
44. Manage the vocational agriculture lab/classroom facilities	2.758	1.314
45. Estimate instructional resource needs	2.643	1.105
46. Prepare budgets	2.628	1.292
47. Purchase supplies and equipment (specifications and bids)	2.571	1.235
48. Utilize paraprofessionals effectively	2.404	1.689
F. Instructional Evaluation		
49. Evaluate your instructional effectiveness	3.141	1.205
50. Establish performance standards for students	2.949	1.197
51. Assess student attitudes	2.884	1.154

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
52. Test student psychomotor (skill) performance	2.843	1.230
53. Test student cognitive (knowledge) performance	2.742	1.140
54. Determine student grades	2.429	1.214
G. Guidance and Placement		
55. Provide information on edu- cational career opportunities	2.871	1.138
56. Assist students in applying for employment or further education	2.868	1.171
57. Gather student data through personal contact	2.321	1.198
58. Gather student data using formal data collection tech- niques	2.235	1.311
H. School Community Relations		
59. Obtain feedback about your vocational agricultlure program	3.071	1.167
60. Give presentations to promote your vocational agriculture program	2.990	1.223
61. Prepare displays to promote your vocational agriculture program	2.975	1.232
62. Develop a school community re- lations plan for your vocation- al agriculture program	2.969	1.192

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
63. Develop brochures to promote your vocational agriculture program	2.844	1.291
64. Prepare news releases and articles concerning your vocational agriculture program	2.832	1.285
65. Work with members of the community	2.782	1.220
66. Work with state and local educators	2.766	1.155
67. Conduct an open house	2.490	1.293
68. Arrange for television and radio presentations concerning your vocational agriculture programs	2.457	1.338
I. Future Farmers of America (FFA)		
69. Assist students in developing and financing a yearly program of activities	2.419	1.609
70. Prepare student FFA members for leadership roles	2.414	1.659
71. Guide participation in FFA award programs and contests	2.294	1.592
72. Supervise FFA activities	2.036	1.520
73. Develop a personal philosophy concerning FFA	1.939	1.466
74. Establish FFA chapter	1.209	1.496

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
J. Professional Role and Development		
75. Keep up-to-date professionally	3.240	1.268
76. Serve your teaching profession	2.756	1.135
77. Develop an active personal philosophy of education	2.665	1.245
K. Supervised Occupational Experience		
78. Engage students in supervised occupational experiences that are related to their occupa- tional objectives	3.071	1.300
79. Maintain adequate records to determine student progress	3.108	1.211
80. Engage students in supervised occupational experiences that are appropriate in light of their ability	2.985	1.228
81. Provide students with effec- tive types of coordination, supervision, and occupational guidance in their occupational experience program.	2.954	1.149
82. Engage students in supervised occupational experiences that are appropriate in light of their place of residence	2.929	1.277
83. Select and evaluate training stations to assist students in obtaining desired occupational competencies	2.911	1.191

TABLE 45 (Cont'd.)

		MEAN SCORES	STANDARD DEVIATION
84.	Develop training plan which includes essential competencies and experiences that are to be acquired during the program	2.898	1.194
85.	Assist students in developing a formal training agreement with the employer	2.711	1.255
L. Contemporary Topics			
86.	Knowing legal liability of teachers	3.306	1.170
87.	Knowing youth labor rules and regulations	3.149	1.186
88.	Knowing MIOSHA rules and regulations regarding vocational facilities	3.130	1.190
89.	Utilizing human relations skills	2.892	1.128
90.	Articulating secondary school vocational programs with post secondary vocational education	2.813	1.158
91.	Implementing a competency-based vocational agriculture program	2.796	1.285
92.	Dealing with alcohol and drug problem	2.680	1.239
93.	Implementing work study programs	2.635	1.133
94.	Teaching employability skill topics (job applications, interviewing, etc.)	2.578	1.187

TABLE 45 (Cont'd.)

	MEAN SCORES	STANDARD DEVIATION
95. Providing school-based job placement services	2.390	1.374

**TABLE 46 PROFESSIONAL EDUCATION COMPETENCIES NEEDED BY
MICHIGAN VOCATIONAL AGRICULTURE TEACHERS RANKED
FROM MOST NEEDED TO LEAST NEEDED**

	MEAN SCORES
1. Knowing legal liability of teachers	3.306
2. Assist students in developing self-discipline	3.242
3. Keep up-to-date professionally	3.240
4. Knowing youth labor rules and regulations	3.149
5. Evaluate your instructional effectiveness	3.141
6. Knowing MIOSHA rules and regulations regarding vocational facilities	3.130
7. Maintain adequate records to determine student progress	3.108
8. Determine needs and interests of students	3.102
9. Direct students in applying problem-solving techniques	3.082
10. Obtain feedback about your vocational agriculture programs	3.071
11. Engage students in supervised occupational experiences that are related to their occupational objectives	3.071
12. Evaluate your vocational agriculture program	3.060
13. Develop long-range plans for the vocational agriculture program	3.056

TABLE 46 (Cont'd.)

	MEAN SCORES
14. Plan and direct individualized instructional program	3.051
15. Direct student laboratory experience	3.046
16. Give presentations to promote your vocational agriculture program	2.990
17. Engage students in supervised occupational experiences that are appropriate in light of their ability	2.985
18. Prepare displays to promote your vocational agriculture program	2.975
19. Develop a school community relations plan for your vocational agriculture program	2.969
20. Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	2.954
21. Maintain a filing system of teaching resources	2.950
22. Establish performance standards for students	2.949
23. Engage students in supervised occupational experiences that are appropriate in light of their place of residence	2.929
24. Prepare teacher-made instructional materials	2.919

TABLE 46 (Cont'd.)

	MEAN SCORES
25. Select and evaluate training stations to assist students in obtaining desired occupational competencies	2.911
26. Develop training plan which includes essential competencies and experiences that are to be acquired during the program	2.898
27. Utilizing human relation skills	2.892
28. Assess student attitudes	2.884
29. Develop self-contained instructional modules	2.883
30. Provide information on educational career opportunities	2.871
31. Assist students in applying for employment or further education	2.868
32. Direct students in instructing other students	2.859
33. Provide instruction for gifted students	2.844
34. Develop brochures to promote your vocational agriculture program	2.844
35. Test student psychomotor (skill) performance	2.843
36. Prepare news releases and articles concerning your vocational agriculture program	2.832
37. Articulating secondary school vocational programs with post secondary vocational education	2.813

TABLE 46 (Cont'd.)

	MEAN SCORES
38. Implementing a competency-based vocational agriculture program	2.796
39. Organize a vocational agriculture lab/classroom facilities	2.793
40. Employ simulation techniques	2.792
41. Develop vocational agriculture program goals and objectives	2.784
42. Provide for safety needs of students	2.783
43. Use subject matter experts to present information	2.782
44. Work with members of the community	2.782
45. Work with state and local educators	2.766
46. Employ the project method technique	2.763
47. Prepare and utilize instruction sheets	2.761
48. Maintain an occupational advisory committee	2.758
49. Manage the vocational agriculture lab/classroom facilities	2.758
50. Serve your teaching profession	2.756
51. Test student cognitive (knowledge) performance	2.742
52. Select student instructional materials	2.716
53. Assist students in developing a formal training agreement with the employer	2.711

TABLE 46 (Cont'd.)

	MEAN SCORES
54. Conduct a community survey to determine employment demands and student interests	2.697
55. Provide instruction for disadvantaged students	2.697
56. Dealing with alcohol and drug problem	2.680
57. Employ reinforcement techniques	2.672
58. Develop an active personal philosophy of education	2.665
59. Estimate instructional resource needs	2.643
60. Implementing work study programs	2.635
61. Prepare budgets	2.628
62. Develop student performance objectives	2.603
63. Direct programmed instruction	2.603
64. Demonstrate a concept or principle	2.601
65. Teaching employability skill topics (job applications, interviewing, etc.)	2.573
66. Purchase supplies and equipment (specification and bids)	2.571
67. Conduct a student follow-up study	2.548
68. Present information through audio-visual equipment	2.533
69. Demonstrate a manipulative skill	2.525

TABLE 46 (Cont'd.)

	MEAN SCORES
70. Report the findings of a community survey	2.518
71. Present information through an illustrated talk	2.490
72. Conduct an open house	2.490
73. Conduct an occupational analysis	2.477
74. Develop a course of study	2.477
75. Arrange for television and radio presentations concerning your vocational agriculture program	2.457
76. Employ oral questioning techniques	2.442
77. Provide instruction for handicapped students	2.437
78. Determine student grades	2.429
79. Develop a unit of instruction	2.427
80. Stimulate learning through brainstorming and buzz groups	2.424
81. Assist students in developing and financing a yearly program of activities	2.419
82. Prepare student FFA members for leadership roles	2.414
83. Utilize paraprofessionals effectively	2.404
84. Provide school-based job placement services	2.390
85. Direct field trips	2.362

TABLE 46 (Cont'd.)

	MEAN SCORES
86. Gather student data through personal contact	2.321
87. Guide participation in FFA award programs and contests	2.294
88. Conduct group discussions, panel discussions and symposiums	2.274
89. Organize an occupational advisory committee	2.255
90. Gather student data using formal data collection technique	2.235
91. Develop a lesson plan	2.157
92. Supervise FFA activities	2.036
93. Employ the team teaching approach	1.980
94. Develop a personal philosophy concerning FFA	1.939
95. Establish FFA chapter	1.209

TABLE 47 FREQUENCIES OF RESPONSE BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS ON THE RATING SCALE FOR THEIR NEED TO UPDATE OR FURTHER IMPROVE FOR EACH OF THE COMPETENCIES

	Need to Update or Further Improve						
	No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High
A. Program Planning, Development & Evaluation							
1. Conduct a community survey to determine employment demands and students interests	14	16	17	39	62	38	13
2. Report the findings of a community survey	4	21	23	43	61	38	9
3. Organize an occupational advisory committee	3	25	45	42	42	24	18
4. Maintain an occupational advisory committee	1	10	27	42	60	40	19
5. Develop vocational agriculture program goals and objectives		8	30	44	53	44	20
6. Conduct an occupational analysis		17	20	59	61	38	4
7. Develop a course of study		10	36	60	44	40	9

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
8. Develop long-range plans for the vocational agriculture program	2	5	19	31	67	55	20
9. Conduct a student follow-up study	2	19	26	43	56	44	9
10. Evaluate your vocational agriculture program		6	18	24	81	51	19
B. Instructional Planning							
11. Determine needs and interests of students	2	1	14	33	80	54	15
12. Develop student performance objectives		4	37	47	67	34	10
13. Develop a unit of instruction		5	44	59	52	31	8
14. Develop a lesson plan	1	5	62	69	30	25	7
15. Select student instructional materials	1	2	35	48	57	44	12
16. Prepare teacher-made instructional materials	1	2	25	39	64	56	12

TABLE 47 (Cont'd.)

		Need to Update or Further Improve						
		No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High
<hr/>								
C. Instructional Execution-Techniques								
17. Direct field trips	2	9	40	66	47	23	12	
18. Conduct group discussions, panel discussion, and symposiums	1	9	37	68	61	21	2	
19. Stimulate learning through brainstorming and buzz groups		5	29	69	71	22	3	
20. Direct students in instructing other students		3	16	44	86	43	7	
21. Employ simulation techniques	1	6	19	43	78	47	5	
22. Direct student laboratory experience	2	2	24	35	59	57	20	
23. Direct students in applying problem-solving techniques	2	1	19	38	61	61	17	
24. Employ the project method technique		6	25	54	56	41	17	
25. Employ oral questioning techniques	1	3	38	61	64	28	4	

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
26. Employ reinforcement techniques		3	23	60	72	31	10
27. Present information through an illustrated talk		5	32	66	59	30	7
28. Demonstrate a manipulative skill	17	2	29	61	58	26	6
29. Demonstrate a concept or principle	5	2	24	68	66	24	10
30. Employ the team teaching approach		41	30	54	44	25	5
31. Use subject matter experts to present information	1	4	20	57	65	39	13
32. Present information through audio-visual equipment	1	3	34	64	57	30	10
D. Instructional Execution-In- dividualizing							
33. Plan and direct individualized instructional program		7	12	41	64	53	22

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
34. Prepare and utilize instruction sheets	1	7	23	45	71	38	14
35. Develop self-contained instructional modules	1	8	20	41	66	42	21
36. Direct programmed instruction	4	14	22	43	72	36	8
37. Provide instruction for handicapped students	1	20	25	56	53	33	11
38. Provide instruction for disadvantaged students		11	22	50	60	44	12
39. Provide instruction for gifted students		15	18	44	51	47	24
E. Instructional Management							
40. Estimate instructional resource needs		5	23	58	72	32	9
41. Prepare budgets		11	26	51	65	28	18
42. Purchase supplies and equipment (specification and bids)	1	5	34	62	49	34	14
43. Maintain a filing system of teaching resources		3	27	46	44	56	23

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
44. Provide for safety needs of students	1	4	24	63	50	32	25
45. Assist students in developing self-discipline	1	3	16	31	59	57	32
46. Organize the vocational agriculture lab/classroom facilities	1	5	32	51	49	34	27
47. Manage the vocational agriculture lab/classroom facilities		5	32	49	57	31	25
48. Utilize paraprofessionals effectively	2	41	29	22	50	32	23
F. Instructional Evaluation							
49. Establish performance standards for students	3	5	21	36	65	54	15
50. Test student cognitive (knowledge) performance		3	26	54	62	44	10
51. Test student psychomotor (skill) performance		4	26	49	53	51	16
52. Assess student attitudes		1	22	52	68	36	20

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
53. Determine student grades		3	47	62	48	26	13
54. Evaluate your instructional effectiveness		1	19	40	57	54	28
G. Guidance and Placement							
55. Gather student data using formal collection techniques	2	23	33	59	42	36	4
56. Gather student data through personal contact	8	16	26	66	50	29	4
57. Provide information on educational career opportunities	4	6	16	44	70	48	11
58. Assist students in applying for employment or further education	1	5	21	44	64	52	12
H. School Community Relations							
59. Develop a school community relations plan for your vocational agriculture program	3	6	16	43	58	59	14

TABLE 47 (Cont'd.)

	Need to Update or Further Improve						
	No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High
60. Give presentations to promote your vocational agriculture program		6	18	37	66	53	19
61. Develop brochures to promote your vocational agriculture program		8	26	41	54	54	16
62. Prepare displays to promote your vocational agriculture program		8	18	35	62	61	15
63. Prepare news releases and articles concerning your vocational agriculture program	2	8	22	44	64	38	21
64. Arrange for television and radio presentations concerning your vocational agriculture program	2	18	29	52	54	32	12
65. Conduct an open house		11	37	54	49	37	11
66. Work with members of the community	1	4	27	50	63	36	18
67. Work with state and local educators	1	5	20	58	58	46	11

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
68. Obtain feedback about your vocational agriculture program	1	4	17	32	72	53	20
I. Future Farmers of America (FFA)							
69. Develop a personal philosophy concerning FFA	3	39	41	51	36	15	14
70. Establish FFA chapter	3	87	50	23	16	7	13
71. Supervise FFA activities	2	40	38	45	40	20	14
72. Guide participation in FFA award programs and contests	1	38	27	41	41	33	18
73. Prepare student FFA members for leadership roles	1	38	25	36	37	39	23
74. Assist students in developing and financing a yearly program of activities	1	37	21	37	46	36	21
J. Professional Role and Development							
75. Keep up-to-date professionally	3	3	15	38	48	57	35
76. Serve your teaching profession	2	3	24	51	68	39	12

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
77. Develop an active personal philosophy of education	2	6	27	62	49	37	16
K. Supervised Occupational Experience							
78. Engage students in supervised occupational experiences that are related to their occupational objectives	1	7	20	32	55	59	25
79. Engage students in supervised occupational experiences that are appropriate in light of their ability	1	6	20	36	61	58	17
80. Engage students in supervised occupational experiences that are appropriate in light of their place of residence	1	8	22	35	63	51	19
81. Select and evaluate training stations to assist students in obtaining desired occupational competencies	8	8	14	40	67	48	14

TABLE 47 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
82. Assist students in developing a formal training agreement with the employer	2	12	20	47	64	42	12
83. Develop training plan which includes essential competencies and experiences that are to be acquired during the program	3	8	15	42	70	46	15
84. Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	5	4	16	44	67	47	16
85. Maintain adequate records to determine student progress	4	5	16	31	67	52	24
L. Contemporary Topics							
86. Knowing legal liability of teachers	6	3	9	36	53	61	31
87. Utilizing human relation skills	4	3	21	41	72	45	13

TABLE 47 (Cont'd.)

	Need to Update or Further Improve						
	No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High
88. Implementing work study programs	2	8	24	48	76	34	7
89. Implementing a competency-based vocational agriculture program	3	9	27	34	66	44	16
90. Providing school-based job placement services	4	22	29	49	49	36	10
91. Dealing with alcohol and drug problem	6	6	26	60	48	38	15
92. Teaching employability skill topics (job applications, interviewing, etc.)	5	7	29	58	54	38	8
93. Knowing youth labor rules and regulations	5	4	13	36	61	56	24
94. Articulating secondary school vocational programs with post secondary vocational education	7	9	10	54	64	44	11
95. Knowing MIOSHA rules and regulations regarding vocational facilities	7	4	12	39	63	48	26

TABLE 48 PERCENTAGES OF RESPONSE BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS ON THE RATING SCALE FOR THEIR NEED TO UPDATE OR FURTHER IMPROVE IN EACH OF THE COMPETENCIES

	Need to Update or Further Improve						
	No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High
A. Program Planning, Development & Evaluation							
1. Conduct a community survey to determine employment demands and student interests	7.0	8.0	8.5	19.6	31.2	19.1	6.5
2. Report the findings of a community survey	2.0	10.6	11.6	21.6	30.7	19.1	4.5
3. Organize an occupational advisory committee	1.5	12.6	22.6	21.1	21.1	12.1	9.0
4. Maintain an occupational advisory committee	.5	5.0	13.6	21.1	30.2	20.1	9.5
5. Develop vocational agriculture program goals and objectives		4.0	15.1	22.1	26.6	22.1	10.1
6. Conduct an occupational analysis		8.5	10.1	29.6	30.7	19.1	2.0
7. Develop a course of study		5.0	18.1	30.2	22.1	20.1	4.5

TABLE 43 (Cont'd.)

		Need to Update or Further Improve						
	No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High	
8. Develop long-range plans for the vocational agriculture program	1.0	2.5	9.5	15.6	33.7	27.6	10.1	
9. Conduct a student follow-up study	1.0	9.5	13.1	21.6	28.1	22.1	4.5	
10. Evaluate your vocational agriculture program		3.0	9.0	12.1	40.7	25.6	9.5	
B. Instructional Planning								
11. Determine needs and interests of students	1.0	.5	7.0	16.6	40.2	27.1	7.5	
12. Develop student performance objectives		2.0	18.6	23.6	33.7	17.1	5.0	
13. Develop a unit of instruction		2.5	22.1	29.6	26.1	15.6	4.0	
14. Develop a lesson plan	.5	2.5	31.2	34.7	15.1	12.6	3.5	
15. Select student instructional materials	.5	1.0	17.6	24.1	28.6	22.1	6.0	
16. Prepare teacher-made instructional materials	.5	1.0	12.6	19.6	32.2	28.1	6.0	

TABLE 48 (Cont'd.)

		Need to Update or Further Improve					
	No Re- sponse	Does Not Apply	None	Low	Medium	High	Very High
<hr/>							
C. Instructional Execution-Techniques							
17. Direct field trips	1.0	4.5	20.1	33.2	23.6	11.6	6.0
18. Conduct group discussions, panel discussions, and symposiums	.5	4.5	18.6	34.2	30.7	10.6	1.0
19. Stimulate learning through brainstorming and buzz groups		2.5	14.6	34.7	35.7	11.1	1.5
20. Direct students in instructing other students		1.5	8.0	22.1	43.2	21.6	3.5
21. Employ simulation techniques	.5	3.0	9.5	21.6	39.2	23.6	2.5
22. Direct student laboratory experience	1.0	1.0	12.1	17.6	29.6	28.6	10.1
23. Direct students in applying problem-solving techniques	1.0	.5	9.5	19.1	30.7	30.7	8.5
24. Employ the project method technique		3.0	12.6	27.1	28.1	20.6	8.5
25. Employ oral questioning techniques	.5	1.5	19.1	30.7	32.2	14.1	2.0

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
26. Employ reinforcement techniques		1.5	11.6	30.2	36.2	15.6	5.0
27. Present information through an illustrated talk		2.5	16.1	33.2	29.6	15.1	3.5
28. Demonstrate a manipulative skill	8.5	1.0	14.6	30.7	29.1	13.1	3.0
29. Demonstrate a concept or principle	2.5	1.0	12.1	34.2	33.2	12.1	5.0
30. Employ the team teaching approach		20.6	15.1	27.1	22.1	12.6	2.5
31. Use subject matter experts to present information	.5	2.0	10.1	28.6	32.7	19.6	6.5
32. Present information through audio-visual equipment	.5	1.5	17.1	32.2	28.6	15.1	5.0
D. Instructional Execution-Individualizing							
33. Plan and direct individualized instructional program		3.5	6.0	20.6	32.2	26.6	11.1

TABLE 4g (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
34. Prepare and utilize instruction sheets	.5	3.5	11.6	22.6	35.7	19.1	7.0
35. Develop self-contained instructional modules	.5	4.0	10.1	20.6	33.2	21.1	10.6
36. Direct programmed instruction	2.0	7.0	11.1	21.6	36.2	18.1	4.0
37. Provide instruction for handicapped students	.5	10.1	12.6	28.1	26.6	16.6	5.5
38. Provide instruction for disadvantaged students		5.5	11.1	25.1	30.2	22.1	6.0
39. Provide instruction for gifted students		7.5	9.0	22.1	25.6	23.6	12.1
E. Instructional Management							
40. Estimate instructional resource needs		2.5	11.6	29.1	36.2	16.1	4.5
41. Prepare budgets		5.5	13.1	25.6	32.7	14.1	9.0
42. Purchase supplies and equipment (specification and bids)	.5	2.5	17.1	31.2	24.6	17.1	7.0

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
43. Maintain a filing system of teaching resources		1.5	13.6	23.1	22.1	28.1	11.6
44. Provide for safety needs of students	.5	2.0	12.1	31.7	25.1	16.1	12.6
45. Assist students in developing self-discipline	.5	1.5	8.0	15.6	29.6	28.6	16.1
46. Organize a vocational agriculture lab/classroom facilities	.5	2.5	16.1	25.6	24.6	17.1	13.6
47. Manage the vocational agriculture lab/classroom facilities		2.5	16.1	24.6	28.6	15.6	12.6
48. Utilize paraprofessionals effectively	1.0	20.6	14.6	11.1	25.1	16.1	11.6
F. Instructional Evaluation							
49. Establish performance standards for students	1.5	2.5	10.6	18.1	32.7	27.1	7.5
50. Test students cognitive (knowledge) performance		1.5	13.1	27.1	31.2	22.1	5.0

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
51. Test students psychomotor (skill) performance		2.0	13.1	24.6	26.6	25.6	8.0
52. Assess student attitudes		.5	11.1	26.1	34.2	18.1	10.1
53. Determine student grades		1.5	23.6	31.2	24.1	13.6	6.5
54. Evaluate your instructional effectiveness		.5	9.5	20.1	28.6	27.1	14.1
G. Guidance and Placement							
55. Gather student data using formal data collection techniques	1.0	11.6	16.6	29.6	21.1	18.1	2.0
56. Gather student data through personal contact	4.0	8.0	13.1	33.2	25.1	14.6	2.0
57. Provide information on educational career opportunities	2.0	3.0	8.0	22.1	35.2	24.1	5.5
58. Assist students in applying for employment or further education	.5	2.5	10.6	22.1	32.2	26.1	6.0
H. School Community Relations							

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
59. Develop a school community relations plan for your vocational agriculture program	1.5	3.0	8.0	21.6	29.1	29.6	7.0
60. Give presentations to promote your vocational agriculture program		3.0	9.0	18.6	33.2	26.6	9.5
61. Develop brochures to promote your vocational agriculture program		4.0	13.1	20.6	27.1	27.1	8.0
62. Prepare displays to promote your vocational agriculture program		4.0	9.0	17.6	31.2	30.7	7.5
63. Prepare news releases and articles concerning your vocational agriculture program	1.0	4.0	11.1	22.1	32.2	19.1	10.6
64. Arrange for television and radio presentations concerning your vocational agriculture program	1.0	9.0	14.6	26.1	27.1	16.1	6.0

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
65. Conduct an open house		5.5	18.6	27.1	24.6	18.6	5.5
66. Work with members of the community	.5	2.0	13.6	25.1	31.7	18.1	9.0
67. Work with state and local educators	.5	2.5	10.1	29.1	29.1	23.1	5.5
68. Obtain feedback about your vocational agri- culture program	.5	2.0	8.5	16.1	36.2	26.6	10.1
I. Future Farmers of America (FFA)							
69. Develop a personal philosophy concerning FFA	1.5	19.6	20.6	25.6	18.1	7.5	7.0
70. Establish FFA chapter	1.5	43.7	25.1	11.6	8.0	3.5	6.5
71. Supervise FFA activities	1.0	20.1	19.1	22.6	20.1	10.1	7.0
72. Guide participation in FFA award programs and contests	.5	19.1	13.6	20.6	20.6	16.6	9.0
73. Prepare student FFA for leadership roles	.5	19.1	12.6	18.1	18.6	19.6	11.6

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
74. Assist students in developing and financing a yearly program of activities	.5	18.6	10.6	18.6	23.1	18.1	10.6
J. Professional Role and Development							
75. Keep up-to-date professionally	1.5	1.5	7.5	19.1	24.1	28.6	17.6
76. Serve your teaching profession	1.0	1.5	12.1	25.6	34.2	19.6	6.0
77. Develop an active personal philosophy of education	1.0	3.0	13.6	31.2	24.6	18.6	8.0
K. Supervised Occupational Experience							
78. Engage students in supervised occupational experiences that are related to their occupational objectives	.5	3.5	10.1	16.1	27.6	29.6	12.6

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
79. Engage students in supervised occupational experiences that are appropriate in light of their ability	.5	3.0	10.1	18.1	30.7	29.1	8.5
80. Engage students in supervised occupational experiences that are appropriate in light of their place of residence	.5	4.0	11.1	17.6	31.7	25.6	9.5
81. Select and evaluate training stations to assist students in obtaining desired occupational competencies	4.0	4.0	7.0	20.1	33.7	24.1	7.0
82. Assist students in developing a formal training agreement with the employer	1.0	6.0	10.1	23.6	32.2	21.1	6.0
83. Develop training plan which includes essential competencies and experiences that are to be acquired during the program	1.5	4.0	7.5	21.1	35.2	23.1	7.5

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
84. Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program	2.5	2.0	8.0	22.1	33.7	23.6	8.0
85. Maintain adequate records to determine student progress	2.0	2.5	8.0	15.6	33.7	26.1	12.1
L. Contemporary Topics							
86. Knowing legal liability of teachers	3.0	1.5	4.5	18.1	26.6	30.7	15.6
87. Utilizing human relation skills	2.0	1.5	10.6	20.6	36.2	22.6	6.5
88. Implementing work study programs	1.0	4.0	12.1	24.1	38.2	17.1	3.5
89. Implementing a competency-based vocational agriculture program	1.5	4.5	13.6	17.1	33.2	22.1	8.0
90. Providing school-based job placement services	2.0	11.1	14.6	24.6	24.6	18.1	5.0

TABLE 48 (Cont'd.)

	No Re- sponse	Need to Update or Further Improve					
		Does Not Apply	None	Low	Medium	High	Very High
91. Dealing with alcohol and drug problem	3.0	3.0	13.1	30.2	24.1	19.1	7.5
92. Teaching employability skill topics (job applications, interviewing, etc.)	2.5	3.5	14.6	29.1	27.1	19.1	4.0
93. Knowing youth labor rules and regulations	2.5	2.0	6.5	18.1	30.7	28.1	12.1
94. Articulating secondary school vocational programs with post secondary vocational education	3.5	4.5	5.0	27.1	32.2	22.1	5.5
95. Knowing MIOSHA rules and regulations regarding vocational facilities	3.5	2.0	6.0	19.6	31.7	24.1	13.1

**TABLE 49 MEAN SCORES OF THE COMPETENCIES UNDER FFA BY
MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF
AREA CENTERS AND HIGH SCHOOLS**

Compe- tency No.	Competencies	Types of School	
		Area Center (N=43)	High School (N=156)
69	Develop a personal philosophy concerning FFA	.98	2.21
70	Establish FFA chapter	.67	1.36
71	Supervise FFA activities	.84	2.35
72	Guide participation in FFA award programs and contests	.98	2.66
73	Prepare student FFA members for leadership roles	.93	2.83
74	Assist students in developing and financing a yearly program of activities	1.00	2.83
TOTAL		.89	2.37

TABLE 50 MEAN SCORES OF THE COMPETENCIES UNDER FFA BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF DIFFERENT AGE GROUPS

Compe- tency No.	Competencies	AGE GROUP OF TEACHERS					
		25 yr. or less (N=29)	26-30 (N=37)	31-40 (N=74)	41-50 (N=32)	51-60 (N=24)	Over 60 (N=3)
69	Develop a personal philosophy concerning FFA	1.96	1.65	2.11	1.72	2.13	2.33
70	Establish FFA chapter	1.41	1.14	1.18	.90	1.42	2.33
71	Supervise FFA activities	2.03	1.81	2.11	1.81	2.21	3.00
72	Guide participation in FFA award programs and contests	2.24	2.05	2.48	2.19	2.21	3.00
73	Prepare student FFA members for leadership roles	2.41	2.22	2.62	2.19	2.42	2.67
74	Assist students in developing and financing a yearly program of activities	2.79	2.19	2.58	2.19	2.29	2.33
OVERALL MEAN		2.14	1.84	2.17	1.83	2.11	2.61

TABLE 51 MEAN SCORES OF THE COMPETENCIES UNDER FFA BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WHO HAD MAJOR IN AGRICULTURAL EDUCATION AND THOSE WHO HAD MAJOR IN NON-AGRICULTURAL EDUCATION

Compe- tency No.	Competencies	Teachers With Agricultural Ed. Major (N=143)	Teachers With Non-Agricul- tural Ed Major (N=52)
69	Develop a personal philosophy concerning FFA	2.11	1.58
70	Establish FFA chapter	1.23	1.22
71	Supervise FFA activities	2.18	1.65
72	Guide participation in FFA award programs and contests	2.46	1.94
73	Prepare student FFA members for leadership roles	2.59	2.06
74	Assist students in developing and financing a yearly program of activities	2.58	2.13
OVERALL MEAN		2.19	1.76

TABLE 52 MEAN SCORES OF COMPETENCIES UNDER FFA BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WHO WERE MSU GRADUATES AND NON-MSU GRADUATES

Competency No.	Competencies	MSU Graduates (N=163)	Non-MSU Graduates (N=31)
69	Develop a personal philosophy concerning FFA	2.04	1.45
70	Establish FFA chapter	1.24	1.19
71	Supervise FFA activities	2.12	1.55
72	Guide participation in FFA award programs and contests	2.39	1.90
73	Prepare student FFA members for leadership roles	2.56	1.77
74	Assist students in developing and financing a yearly program of activities	2.59	1.77
OVERALL MEAN		2.16	1.61

TABLE 53 MEAN SCORES OF COMPETENCIES UNDER FFA BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WHO WERE ENROLLED AND THOSE WHO WERE NOT ENROLLED IN VOCATIONAL AGRICULTURE IN HIGH SCHOOL

Competency No.	Competencies	Enrollment in Vo. Ag. in High School N=124	Non-Enrollment in Vo. Ag. in High School N=75
69	Develop a personal philosophy concerning FFA	2.02	1.81
70	Establish FFA chapter	1.12	1.35
71	Supervise FFA activities	2.13	1.84
72	Guide participation in FFA award programs and contests	2.46	2.03
73	Prepare student FFA members for leadership roles	2.63	2.07
74	Assist students in developing and financing a yearly program of activities	2.61	2.15
OVERALL MEAN		2.16	1.88

TABLE 54 MEAN SCORES OF COMPETENCIES UNDER FFA BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS WHO WERE FFA MEMBERS AND NON-FFA MEMBERS IN HIGH SCHOOL

Compe- tency No.	Competencies	FFA in High Sch. (N=119)	Non-FFA in High Sch. (N=78)
69	Develop a personal philosophy concerning FFA	2.02	1.84
70	Establish FFA chapter	1.11	1.31
71	Supervise FFA activities	2.15	1.81
72	Guide participation in FFA award programs and contests	2.47	2.01
73	Prepare student FFA members for leadership roles	2.66	2.03
74	Assist students in developing and financing a yearly program of activities	2.64	2.12
	OVERALL MEAN	2.18	1.85

TABLE 55 MEAN SCORES OF THE COMPETENCIES UNDER FFA BY MICHIGAN VOCATIONAL AGRICULTURE TEACHERS OF DIFFERENT CERTIFICATION

Competency No.	Competencies	TYPE OF CERTIFICATION				
		AVA (N=19)	TVA (N=14)	FVA (N=15)	SSP (N=49)	SSC (N=102)
69	Develop a personal philosophy concerning FFA	.89	1.58	1.73	2.06	2.15
70	Establish FFA chapter	.74	1.07	1.67	1.31	1.20
71	Supervise FFA activities	1.16	1.71	1.93	2.06	2.25
72	Guide participation in FFA award programs and contests	1.26	2.14	1.83	2.33	2.55
73	Prepare student FFA members for leadership roles	1.32	2.14	1.87	2.43	2.73
74	Assist students in developing and financing a yearly program of activities	1.47	2.36	1.93	2.59	2.59
	OVERALL MEAN	1.21	1.84	1.83	2.13	2.25

APPENDIX B
MAILED QUESTIONNAIRE

Part I -- Educational and Occupational Background Information

PAGE 1

Directions: Please respond to each item by writing in the information requested or check the appropriate response(s) for each question.

1. Your name _____ (1-3)
2. School name _____ (5-7)
3. Office telephone number _____
4. Check your age group (8)
 - ____ 1. 25 and under
 - ____ 2. 26-30
 - ____ 3. 31-40
 - ____ 4. 41-50
 - ____ 5. 51-60
 - ____ 6. 60 and over
5. What was your major when you graduated from College? _____ (9)
6. What university did you graduate from? _____ (10)
7. Were you enrolled in vocational agriculture in high school? (11)
 - ____ 1. Yes
 - ____ 2. No
8. Were you a member of the FFA in high school? (12)
 - ____ 1. Yes
 - ____ 2. No
9. Check highest diploma/degree held (13)
 - ____ 1. Less than high school diploma
 - ____ 2. High school diploma
 - ____ 3. Junior/Community College degree
 - ____ 4. Bachelor's
 - ____ 5. Master's
 - ____ 6. Specialist's
 - ____ 7. Doctor's
 - ____ 8. Other (specify)
10. Check type of vocational teaching certificate you currently hold. (14)
 - ____ 1. Annual authorization in Agriculture, O.E. Code _____
 - ____ 2. Temporary vocational authorization in Agriculture, O.E. Code _____
 - ____ 3. Full vocational authorization in Agriculture, O.E. Code _____
 - ____ 4. Vocational endorsement of secondary provisional certificate in Agriculture, O.E. Code _____
 - ____ 5. Vocational endorsement of secondary continuing certificate in Agriculture, O.E. Code _____
11. Indicate the percentage of your teaching time in the following subject matter areas (15-22)

(Note: total time should add up to 100%)

 - ____ 1. Agriculture Production
 - ____ 2. Agriculture Supplies
 - ____ 3. Agricultural Mechanics
 - ____ 4. Agricultural Products
 - ____ 5. Ornamental Horticulture
 - ____ 6. Agricultural Resources
 - ____ 7. Forestry
 - ____ 8. Non-Agriculture classes
12. How many years of practical work experience did you have in areas of agriculture before you began teaching? Please include part-time and summer experience in your calculations (Check one) (23)
 - ____ 1. None
 - ____ 2. Some experience, but less than 1 year
 - ____ 3. 1 to 3 years
 - ____ 4. 4 to 9 years
 - ____ 5. More than 10 years
13. How many years have you been teaching vocational agriculture? _____ (24)
14. Are you interested in participating in professional education in-service activities in the next 2 years? (25)
 - ____ 1. Yes
 - ____ 2. No
15. Have you received training in Competency Based Education? (26)
 - ____ 1. Yes
 - ____ 2. No
16. If you checked "Yes" for number 15, from whom did you receive your training in Competency Based Education? (27)
 - ____ 1. University
 - ____ 2. Local Education Agency
 - ____ 3. Other (specify)

PLEASE TURN TO NEXT PAGE

PART II

Following are a list of competencies that several professionals in Agriculture Education believe are important in planning and implementing effective vocational agriculture programs.

Directions: As you read each statement, consider whether it applies to your teaching position. If not, check the "Does Not Apply" column and go on to the next competency statement. If it does apply, rate your need to up-date or improve by placing a check mark () in the appropriate column.

		Does Not Apply	Need to update or further improve					
			None	Low	Medium	High	Very High	
A. Program Planning, Development and Evaluation								
1. Conduct a community survey to determine employment demands and student interests.								(28)
2. Report the findings of a community survey.								(29)
3. Organize an occupational advisory committee.								(30)
4. Maintain an occupational advisory committee.								(31)
5. Develop vocational agriculture program goals and objectives.								(32)
6. Conduct an occupational analysis.								(33)
7. Develop a course of study.								(34)
8. Develop long-range plans for the vocational agriculture program.								(35)
9. Conduct a student follow-up study.								(36)
10. Evaluate your vocational agriculture program.								(37)
B. Instructional Planning								
11. Determine needs and interests of students.								(38)
12. Develop student performance objectives.								(39)
13. Develop a unit of instruction.								(40)
14. Develop a lesson plan.								(41)
15. Select student instructional materials.								(42)
16. Prepare teacher-made instructional materials.								(43)
C. Instructional Execution-Techniques								
17. Direct field trips								(44)
18. Conduct group discussions, panel discussions and symposiums.								(45)
19. Stimulate learning through brainstorming and buzz groups.								(46)
20. Direct students in instructing other students.								(47)
21. Employ simulation techniques.								(48)
22. Direct student laboratory experience.								(49)
23. Direct students in applying problem-solving techniques.								(50)
24. Employ the project method technique.								(51)
25. Employ oral questioning techniques.								(52)
26. Employ reinforcement techniques.								(53)
27. Present information through an illustrated talk.								(54)

	Does Not Apply	Need to update or further improve					
		None	Low	Medium	High	Very High	
28. Demonstrate a manipulative skill.							(55)
29. Demonstrate a concept or principle.							(56)
30. Employ the team teaching approach.							(57)
31. Use subject matter experts to present information.							(58)
32. Present information through audio-visual equipment.							(59)
D. Instructional Execution-Individualizing							
33. Plan and direct individualized instructional program.							(60)
34. Prepare and utilize instruction sheets.							(61)
35. Develop self-contained instructional modules.							(62)
36. Direct programmed instruction.							(63)
37. Provide instruction for handicapped students.							(64)
38. Provide instruction for disadvantaged students.							(65)
39. Provide instruction for gifted students.							(66)
E. Instructional Management							
40. Estimate instructional resource needs.							(67)
41. Prepare budgets.							(68)
42. Purchase supplies and equipment (specification and bids).							(69)
43. Maintain a filing system of teaching resources.							(70)
44. Provide for safety needs of students.							(71)
45. Assist students in developing self-discipline.							(72)
46. Organize the vocational agriculture lab/classroom facilities.							(73)
47. Manage the vocational agriculture lab/classroom facilities.							(74)
48. Utilize paraprofessionals effectively.							(75)
F. Instructional Evaluation							
49. Establish performance standards for students.							(76)
50. Test student cognitive (knowledge) performance.							(77)
51. Test student psychomotor (skill) performance.							(78)
52. Assess student attitudes.							(79)
53. Determine student grades.							(80)
54. Evaluate your instructional effectiveness.							(5) 2
G. Guidance and Placement							
55. Gather student data using formal data collection techniques.							(6)

	Does Not Apply	Need to update or further improve					
		None	Low	Medium	High	Very High	
56. Gather student data through personal contact.							(7)
57. Provide information on educational career opportunities.							(8)
58. Assist students in applying for employment or further education.							(9)
H. School Community Relations							
59. Develop a school community relations plan for your vocational agriculture program.							(10)
60. Give presentations to promote your vocational agriculture program.							(11)
61. Develop brochures to promote your vocational agriculture program.							(12)
62. Prepare displays to promote your vocational agriculture program.							(13)
63. Prepare news releases and articles concerning your vocational agriculture program.							(14)
64. Arrange for television and radio presentations concerning your vocational agriculture program.							(15)
65. Conduct an open house.							(16)
66. Work with members of the community.							(17)
67. Work with state and local educators.							(18)
68. Obtain feedback about your vocational agriculture program.							(19)
I. Future Farmers of America (FFA)							
69. Develop a personal philosophy concerning FFA.							(20)
70. Establish FFA chapter.							(21)
71. Supervise FFA activities.							(22)
72. Guide participation in FFA award programs and contests.							(23)
73. Prepare student FFA members for leadership roles.							(24)
74. Assist students in developing and financing a yearly program of activities.							(25)
J. Professional Role and Development							
75. Keep up-to-date professionally.							(26)
76. Serve your teaching profession.							(27)
77. Develop an active personal philosophy of education.							(28)
K. Supervised Occupational Experience							
78. Engage students in supervised occupational experiences that are related to their occupational objectives.							(29)
79. Engage students in supervised occupational experiences that are appropriate in light of their ability.							(30)
80. Engage students in supervised occupational experiences that are appropriate in light of their place of residence.							(31)

	Does Not Apply	Need to update or further improve					
		None	Low	Medium	High	Very High	
81. Select and evaluate training stations to assist students in obtaining desired occupational competencies.							(32)
82. Assist students in developing a formal training agreement with the employer.							(33)
83. Develop training plan which includes essential competencies and experiences that are to be acquired during the program.							(34)
84. Provide students with effective types of coordination, supervision, and occupational guidance in their occupational experience program.							(35)
85. Maintain adequate records to determine student progress.							(36)
L. Contemporary Topics							
86. Knowing legal liability of teachers.							(37)
87. Utilizing human relation skills.							(38)
88. Implementing work study programs.							(39)
89. Implementing a competency-based vocational agriculture program.							(40)
90. Providing school-based job placement services.							(41)
91. Dealing with alcohol and drug problem.							(42)
92. Teaching employability skill topics (job applications, interviewing, etc.)							(43)
93. Knowing youth labor rules and regulations.							(44)
94. Articulating secondary school vocational programs with post secondary vocational education.							(45)
95. Knowing MIOSHA rules and regulations regarding vocational facilities.							(46)

THANKS

APPENDIX C

LETTER TO THE PILOT-TEST COMMITTEE



March 3, 1980

Dear

There is very little up-to-date information on the in-service education needs of vocational agriculture teachers in Michigan. This creates a problem for teacher educators in planning effective in-service education programs.

You are in a position to assist in determining the professional education competencies needed by vocational agriculture teachers to conduct relevant and meaningful vocational agriculture programs. It is also felt that individuals like yourself can assist in improving the in-service education programs for vocational agriculture teachers. You have been selected as one of the individuals to review the questionnaire before it is mailed to vocational agriculture teachers in the State. Please review the enclosed questionnaire in terms of (1) format, and (2) clarity of the statements.

This questionnaire has been reviewed by members of the researcher's graduate committee and the Agribusiness and Natural Resource Education faculty at Michigan State University. In the opinion of this committee, your comments and suggestions are regarded as highly important.

Since we are working on a very tight time limit, we would appreciate your response on or before March 10, 1980. Please return this questionnaire to:

Dr. Eddie Moore
Department of Secondary Education & Curriculum
Room 332
Michigan State University
East Lansing, Michigan 48824

Sincerely,

ROOgundipe
Rebecca M. Ogundipe

Harrison Gardner
Dr. Harrison Gardner
Michigan State University

erickson hall • michigan state university • east lansing, michigan 48824

APPENDIX D
COVER LETTER TO THE RESPONDENTS

Agricultural and Natural Resources Education



March 17, 1980

Dear

There is very little up to date information on the in-service education needs of vocational agriculture teachers in Michigan. This creates a problem for teacher educators in planning effective in-service education programs.

You are in a position to assist in determining the professional education competencies needed by vocational agriculture teachers in order to conduct relevant and meaningful vocational agriculture programs. This information will indeed provide guidance to teacher educators in planning and implementing effective inservice education programs for vocational agriculture teachers in Michigan.

Your support can be made by responding to the enclosed questionnaire. Your response will be held in strict confidence.

Please respond to all statements on the questionnaire and return to the address shown below on or before March 31, 1980. The self-addressed and stamped envelope is enclosed for your convenience.

Rebecca M. Ogundipe
C/o Dr. Eddie A. Moore
Dept. of Sec. Educ. & Curr.
332 Erickson Hall
Michigan State University
East Lansing, Michigan 48824

Thank you for your cooperation.

Sincerely,

Rebecca M. Ogundipe

Rebecca M. Ogundipe
Ph.D. (Graduate Student)

Eddie A. Moore

Dr. Eddie A. Moore
Associate Professor

Harrison Gardner

Dr. Harrison Gardner
Coordinator and Professor

APPENDIX E

FIRST LETTER OF REMINDER TO THE RESPONDENTS

Agricultural and Natural Resources Education



April 2, 1980

Dear

A short time ago you should have received a questionnaire concerning the professional education competency needs of vocational agriculture teachers employed in Michigan's vocational agriculture programs. This is an important study because the results will provide guidance to teacher educators in planning and implementing effective inservice education programs for vocational agriculture teachers in Michigan.

In order to make the results of this study of maximum value, it is important that we receive complete responses from each person surveyed. To date we have not received a favorable response from you. We realize that you are very busy but your participation in this study is very essential for its success.

On the assumption that the questionnaire sent to you earlier may not be available, we are enclosing another one. Please respond to all statements on the questionnaire and return it in the enclosed self-addressed, stamped envelope on or before April 18, 1980.

Thank you for your cooperation.

Sincerely,

Rebecca M. Ogundipe

Rebecca M. Ogundipe
Ph.D. (Graduate Student)

Eddie A. Moore

Dr. Eddie A. Moore
Associate Professor

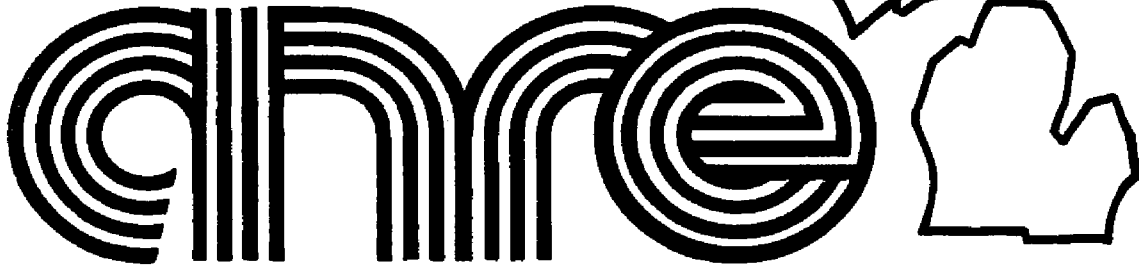
Harry Gardner

Dr. Harrison Gardner
Coordinator and Professor

APPENDIX F

SECOND LETTER OF REMINDER TO THE RESPONDENTS

Agricultural and Natural Resources Education



April 21, 1980

Dear

You should have received two questionnaires concerning the professional education competency needs of vocational agriculture teachers employed in Michigan's vocational agriculture programs. As was mentioned in our letters of March 17 and April 2, 1980, this is an important study because the results will provide guidance to teacher educators in planning and implementing effective inservice education programs for vocational agriculture teachers in Michigan.

In order to make the results of this study of maximum value, it is important that we receive complete responses from each person surveyed. To date we have not received a favorable response from you. We realize that you are very busy but your participation in this study is very essential for its success.

On the assumption that the questionnaire sent to you earlier may not be available, we are enclosing another one. Please respond to all statements on the questionnaire and return it in the enclosed self-addressed, stamped envelope on or before May 5, 1980.

Thank you for your cooperation.

Sincerely,

Rebecca M. Ogundipe
Ph.D. (Graduate Student)

Dr. Eddie A. Moore
Associate Professor

Dr. Harrison Gardner
Coordinator and Professor