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**Attitudes of agriscience teachers in Michigan toward
Internationalizing Agricultural Education Programs**

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Michigan State University, 1992

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ATTITUDES OF AGRISCIENCE TEACHERS IN MICHIGAN TOWARD
INTERNATIONALIZING AGRICULTURAL EDUCATION PROGRAMS

By

Mohammed Delwar Hossain

A DISSERTATION

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ABSTRACT

ATTITUDES OF AGRISCIENCE TEACHERS IN MICHIGAN TOWARD INTERNATIONALIZING AGRICULTURAL EDUCATION PROGRAMS

By

Mohammed Delwar Hossain

Purposes: The major purposes of this study were to examine the attitudes of agriscience teachers toward various aspects of making their curriculum more internationally focused and to examine the differences in attitudes between agriscience teachers who received the Internationalizing Agricultural Education Programs (IAEP) instructional materials and those who did not. Specific objectives were (a) to determine the attitudes of agriscience teachers toward student-related aspects, teacher-related aspects, and educational linkages of making their curriculum more internationally focused; (b) to examine selected demographic characteristics of agriscience teachers and to determine the differences in attitudes of agriscience teachers toward making their curriculum more internationally focused, based on those characteristics; and (c) to examine the differences in attitudes between Michigan agriscience teachers who received the IAEP materials and those who did not receive them.

Method: A Likert-type scale was used to assess respondents' attitudes. Content validity of the instrument was established by a jury of experts. The instrument was pilot tested, and the reliability of the instrument was determined. The instrument was sent to all 160 agriscience teachers in Michigan, and completed responses were received from 141 (88%).

Findings: Overall, agriscience teachers in Michigan expressed favorable attitudes toward making their curriculum more internationally focused. Results of t-test and ANOVA analyses indicated that agriscience teachers differed significantly in their attitudes, based on their memberships in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine and newspapers for agricultural information, participation in national seminars, and their primary teaching areas in secondary schools. Although statistically significant differences were found between respondents who received the IAEP instructional materials and those who did not on six attitudinal statements, no statistically significant differences were found between the two groups on the other 85 attitudinal statements. Planners can use these findings in internationalizing agricultural education programs.

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CHAPTER I

INTRODUCTION

Through the years, as nations have grown and made technical and educational improvements, the United States has become a leader in many areas, including agricultural education. This leadership status has provided the opportunity to concentrate more on domestic research and developments, thereby precipitating a drift away from global issues. According to the Council on Learning (cited in Miles, 1982), "Only 299 institutions out of 3200 have even the rudiments of international education" (p. 43).

In this era of high-tech and advanced communications, the world has become an interdependent community. Winn (1959) stated:

This interdependence in all areas of life has become inevitable . . . and is increasing, not lessening. It must be taken into account by education. This interdependence is found on a world-wide scale. In order that interdependence may become a benefit instead of dread evil and possible world-wide catastrophe, education must revise the conception of patriotism and good citizenship so that it will be in accord with the imperative demands of world-wide association and interaction. (p. 64)

In his book American Education in International Development, Butts (1963) revealed:

American education should promote a wider and deeper understanding of world affairs among the American people. World affairs are every man's affairs. The urgency of the international situation is such that the widest possible understanding among the vast majority of people is a necessity that can no longer be overlooked. Americans need to comprehend the ways of life, the aspirations, the beliefs, and the values of other people of the world if they are to make sound judgments concerning the role of America in the world. Americans also need to acquire perspective concerning their own attitudes toward themselves, toward American life, and toward Americans' role in the world, whether they are individual tourists, or professional representatives in other lands or whether they are stay-at-homes in making America's foreign policy. In sum, Americans need to develop the attitudes and be concerned about the conditions of life that are required if different people are to live together at peace in the present world of national interdependence. (p. 5)

Participants in the 1985 joint meeting of the Association of U.S. University Directors of International Agricultural Programs and the Agricultural Communicators in Education generally agreed that "universities should include international dimensions in courses and the teaching programs and should build international perspectives into college courses and curricula" (Esslinger, 1985, p. 21).

Tenney (1981) said, "Just as no man is an island, no incident today can be considered as isolated" (p. 10). Global interdependence is growing daily. The United States, once considered to be independent and self-sufficient, is struggling to find its proper role in a world of

accommodation and sharing. As Tenney noted, "we are sharing things that are in short supply such as food, energy, natural resources, and persons adequately educated to face and resolve the issue at hand" (p. 10).

Bowen (1987) cited two examples of international involvement: (a) the Live Aid concert, the mass media, and personal testimonials enlightened the world to hunger around the globe; and (b) Farm Aid, the mass media, and personal observations have informed all agricultural teachers of the plight of American agriculture. Bowen asserted that American agriculture is and will probably continue to be in serious trouble. He also said that guilt should impel Americans to eliminate the world's hunger. This scenario suggests a dire need for global agricultural education. Moore (1987) stressed the need for agricultural education to play an expanded role in international education, particularly as it relates to undergraduate and graduate programs.

According to Smuckler and Sommers (1988), if graduates of secondary schools in the next decade are to be prepared for the world in which they will live, teachers must be prepared to teach subjects with an international orientation. About 95% of the world's people are not like the citizens of the United States in terms of language, culture, heritage, thought patterns, and approaches to problem solving. Expansion of an international dimension in the

agricultural education curriculum is important if the American people are to understand them and be prepared to solve problems collectively.

Welton (1987) explained the need for an expanded international dimension in undergraduate and graduate programs. He wrote:

Within recent years, agricultural teachers have become increasingly aware of a necessity to view the profession from a global perspective. We are beginning to perceive ourselves as teachers in a world community. International interdependence on agricultural products and technical expertise, satellites, television, jet travel, employment opportunities abroad, the Work Experience Abroad Program, and the importance of international export markets have all served to create a better understanding of the globe beyond the boundaries of our states and nations. (p. 6)

Thus, the potential role of agricultural teachers and of international agricultural education programs, on both the national and international levels, was evident.

International efforts in secondary agricultural education programs have received great attention in Michigan. In 1989, Michigan and California were selected by the National Council for Agricultural Education to provide national leadership for internationalizing agricultural education programs in the United States. Before this selection, Michigan project staff members had spent a year developing and field testing an instructional manual titled "Internationalizing Agricultural Education Programs"(IAEP). The project staff believed that secondary agriscience students needed to understand agriculture from a global

perspective if they were going to be successful in a global agricultural market. More important, project staff believed that making the curriculum more internationally focused was not just the responsibility of professionals in liberal arts. In fact, they believed that the agricultural education profession had a responsibility to add a global perspective to the curriculum regarding world agriculture, if students were to effectively apply the principles of agriculture and human development in a complex world community.

The leadership for this effort came from faculty and staff in the Department of Agricultural and Extension Education at Michigan State University. It should be kept in mind that making the curriculum in Michigan schools more internationally focused in Michigan was not a high priority of personnel in the Michigan Department of Education. Thus, funding for this initiative was secured from USAID Title XII monies based upon a Joint Memorandum of Understanding between the Agency for International Development, Michigan State University, and North Carolina Agricultural and Technical State University.

Considering that this initiative was not a priority of personnel in the Michigan Department of Education, the program staff made teacher involvement in planning, pilot testing, and disseminating of IAEP materials a major focus of the international programming thrust. Simply stated,

staff members were fully aware that the success of this effort depended on the support and acceptance of the agriscience teachers.

Project staff along with pilot-site teachers offered several teacher workshops during the summer of 1989 to help teachers use the IAEP instructional manual. Approximately 50% of the agriscience teachers in Michigan received the IAEP instructional manual, large United States and world maps, and access to supplemental materials. As this program was not a high priority of personnel in the Michigan Department of Education, and there were only limited resources to disseminate the IAEP materials to remaining teachers in the state, program staff did not disseminate the IAEP materials to the remaining agriscience teachers in Michigan.

In 1990, because 50% of the agriscience teachers had used the IAEP instructional manual for about one year, faculty at Michigan State University were interested in knowing whether the teachers who had received the IAEP instructional manual had different attitudes toward how to make their curriculum more internationally focused than teachers who had not received the IAEP curriculum. This interest created the need for an in-depth analysis of the attitudes of agriscience teachers regarding Michigan's international thrusts. The MSU faculty believed that the success of making the curriculum in Michigan schools more

internationally focused depended on the attitudes of agricultural educators in the state, particularly the attitudes of agriscience teachers. It was believed that the attitudes of agriscience teachers toward making their curriculum more internationally focused would have a significant influence on how effectively they implemented international efforts at the local level.

Although the agricultural education profession has the technical knowledge to change the world, it is believed that many in the profession do not have the attitudes needed to bring about that change. Although the study of attitudes is worthwhile, it would be naive to think that knowing all there is to know about attitudes can immediately solve all of these problems. Long-established traditional patterns of behavior and complex problems of agricultural education are interwoven with attitudes that perpetuate them and make them difficult to change. This study of attitudes is only one piece of a complex puzzle, but the findings of this research can be a key to solving the problem discussed above.

Nature of the Problem

Many researchers have found a relationship between attitudes and information in a given area, suggesting that people acquire most readily those facts that are congruent with their views. Attitudes are, therefore, basic to many educational activities. Attitudes are also products of

education; progress toward democracy at home and international cooperation abroad will depend on the attitudes that are engendered in school children (Stranger, 1941).

An awareness of the attitudes of agriscience teachers toward making their secondary school curriculum more internationally focused is essential for effective development and progress in agricultural education. Because of their position, agriscience teachers are directly responsible for the success or failure of international agricultural education program thrusts. The attitudes these teachers hold about such programs influence the support given to these programs, and hence their effectiveness. Thus, it is important to learn how these teachers perceive and act toward this new endeavor.

Some scholars have suggested that one should consider first a set of situations that have some social objects in common and then consider a set of social behaviors that a person performs in the presence of these situations. If there is similarity among these social behaviors, it can be inferred that the person has an attitude toward the social objects that are present in the social situations. In other words, attitudes represent "consistency in response to social objects" (Campbell, 1963).

Triandis (1971) defined, an attitude as "an idea charged with emotion which predisposes a class of actions to a particular class of social situations" (p. 3). This

definition suggests that attitudes have three components. The first is a cognitive component (beliefs), that is, the idea which is generally some category used by humans in thinking. Categories are inferred from consistencies in responses to discriminably different stimuli. The category "internationalizing agricultural education programs" can be inferred, for example, by determining that people make similar responses to other educational programs. The second component is an affective (feelings), that is, the emotion that charges the idea. If a person (an agriscience teacher) "feels good" or "feels bad" when thinking about this category, it would be said that he or she has a positive or negative attitude toward the members of this category. A third component may be viewed as a behavioral component, that is, a predisposition to action, such as participating in making the curriculum more internationally focused in his or her school.

According to scholars who have studied attitudinal theories, it is possible that the beliefs, feelings, and predispositions or action tendencies of agriscience teachers toward making their curriculum more internationally focused are influenced by such demographic characteristics as age, education, membership in professional societies, reading habits, participation in national and international conferences/seminars, cosmopolitanism, teaching experience, residence, mobility, and teaching area. An understanding of

the influence of these characteristics on respondents' attitudes toward various concepts of making the curriculum more internationally focused and IAEP instructional materials is necessary, in order to plan and implement additional international-infusion efforts.

Little research has been conducted on this subject, and there is a dearth of information on factors affecting the attitudes of agriscience teachers toward making the curriculum more internationally focused. The present study was an attempt to provide more information on this subject. The researcher examined selected demographic characteristics of agriscience teachers and how those characteristics and whether the teachers had received IAEP instructional materials influenced the teachers' attitudes toward various aspects of making their curriculum more internationally focused and IAEP instructional materials.

Purposes of the Study

The major purposes of this study were to examine the attitudes of Michigan agriscience teachers toward various aspects of making their curriculum more internationally focused and to examine the differences in attitudes between Michigan agriscience teachers who received the IAEP instructional materials and teachers who did not receive the materials.

Specific Objectives

To accomplish the major purposes of the study, the following specific objectives were developed:

1. To describe and determine the attitudes of agriscience teachers in Michigan toward student-related aspects, teacher-related aspects, and educational linkages of making their curriculum more internationally focused.
2. To examine the following demographic characteristics of agriscience teachers in Michigan: age, education, years of teaching experience, membership in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine, receiving IAEP instructional materials, reading newspapers for agricultural information, residence, mobility, participation in national and international seminars/conferences, and primary teaching areas.
3. To determine the differences in attitudes of agriscience teachers toward making their curriculum more internationally focused, based on the teachers' demographic characteristics.
4. To provide information about agriscience teachers' attitudes and their demographic characteristics that will help in planning and implementing future international agricultural education curriculum thrusts in Michigan.
5. To describe the attitudes of Michigan agriscience teachers who received the IAEP instructional materials and

those who did not receive the materials toward making their curriculum more internationally focused.

6. To examine the differences in attitudes between Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials.

Limitations of the Study

The study was conducted to gain an understanding of the attitudes of agriscience teachers toward making their curriculum more internationally focused. To make the study meaningful from a research point of view, the following delimitations and limitations were taken into consideration:

1. The study population was delimited to secondary school agriscience teachers in Michigan.
2. Characteristics of agriscience teachers are many and varied; only 12 such characteristics were examined in this study.
3. In attempting to accomplish the objectives listed above, the researcher depended on information furnished by the study participants.
4. The reporting of ideas, beliefs, and attitudes is subject to deficiencies because some respondents might not be able to analyze their true beliefs and attitudes and report them accurately.

Assumptions

An assumption is "the proposition that an apparent fact or principle is true in the light of the available evidence" (Good, 1945, p. 34). The researcher made the following assumptions in undertaking this study:

1. The respondents were capable of responding accurately to questions included in the questionnaire.
2. Views and opinions furnished by the respondents were representative of the views and opinions of the entire population of agriscience teachers in Michigan.
3. The responses given by the study participants were reliable. Respondents were truthful in expressing their convictions and opinions.

Hypotheses

According to Ary, Jacobs, and Razarieh (1990), a hypothesis is a tentative proposition suggested as a solution to a problem or as an explanation of some phenomenon. It is a statement of the researcher's expectations relative to a relationship between variables. A hypothesis may be presented in two ways: as a relational research hypothesis or as a null hypothesis. In studying the relationship between variables, an investigator first formulates a research hypothesis, which states the anticipated relationship between the variables. However, for statistical testing, it is necessary to formulate a null

hypothesis, which states that there is no relationship between the variables under consideration. If a null hypothesis is rejected on the basis of a statistical test, the researcher can conclude that there is a relationship between the variables being examined.

The following null hypotheses were formulated for this study:

Ho I: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their age, education, years of teaching experience, membership in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine, receiving the IAEP instructional materials, reading newspapers for agricultural information, residence, mobility, participation in national and international seminars/conferences, and primary teaching area.

Ho II: There is no statistically significant difference in the attitudes of Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials toward student-related aspects, teacher-related aspects, and educational linkages of making their curriculum more internationally focused.

For testing purposes, Hypothesis I was broken down into the following 14 subhypotheses:

Hypothesis 1: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their age.

Hypothesis 2: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their level of education.

Hypothesis 3: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their years of teaching experience.

Hypothesis 4: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their number of memberships in professional societies/organizations.

Hypothesis 5: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their level of cosmopolitanism.

Hypothesis 6: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their reading of Agricultural Education Magazine.

Hypothesis 7: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on the number of issues of Agricultural Education Magazine read during 1990-91.

Hypothesis 8: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on whether they received the IAEP instructional materials.

Hypothesis 9: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their reading of newspapers for agricultural information.

Hypothesis 10: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their residence.

Hypothesis 11: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on how often they changed their residence during the past 10 years.

Hypothesis 12: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their participation in national seminars. .

Hypothesis 13: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their participation in international seminars.

Hypothesis 14: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their primary teaching area.

For testing purposes, Hypothesis II was broken down into the following three subhypotheses:

Hypothesis 15: There is no statistically significant difference in attitudes toward student-related aspects of making the curriculum more internationally focused between the Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials.

Hypothesis 16: There is no statistically significant difference in attitudes toward teacher-related aspects of making the curriculum more internationally focused between the Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials.

Hypothesis 17: There is no statistically significant difference in attitudes toward educational linkages of making the curriculum more internationally focused between the Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials.

Importance of the Study

Every year, numerous international students come to the United States to study agriculture; these students have various needs and objectives. If American schools, colleges, and universities offer diverse and dynamic courses for these international students, the nation's role in promoting agricultural education throughout the world will be expanded, and more international students will be attracted to and interested in making their curricula more internationalized. In return, these students will be able to bring about positive changes in the agricultural and rural development programs of their own countries.

The United States has several technical and other developmental projects throughout the world. Many Americans are working in those projects to improve the social, political, cultural, and economic conditions of the world's people. As Americans are exposed to international agricultural education and agricultural conditions, their leadership and service will be more effective in solving international problems. To maintain this leadership role and to meet the growing needs of American as well as international students, Michigan's agricultural teachers must demonstrate a favorable attitude toward making their curriculum more internationally focused. The present study is expected to contribute much in this regard.

The findings from this study will be useful to planners as they attempt to implement additional international program thrusts in agricultural education. Using the information gained from this study, planners will be more efficient in making their curriculum more international; in improving international policies, strategies, and projects; and in developing working relationships with other international development agencies. The findings of this study will, therefore, contribute to the body of knowledge concerning the agricultural education profession and the attitudes of educators within the profession.

Definition of Terms

For clarity of understanding, the following terms are defined in the context in which they were used in this study:

Agricultural education: The broad instructional areas in agriculture, encompassing production, processing, marketing, supplies, and services. In the International Encyclopedia of Education, Research and Studies (Husen & Postlethwaite, 1985), agricultural education is defined as having:

... vocational, technical, and academic training aspects, and in addition, agricultural elements are used prominently in environmental and development education; in applied science teaching and fostering aesthetic and emotional values; in developing hobbies and leisure-times skills; in developing students' self concept and schools' self reliance; and in compensatory education. (p. 236)

Agriscience teacher: A person who teaches one or more of the following at the secondary school level: agricultural production, horticulture, agricultural mechanics, agribusiness, agricultural marketing and processing, agricultural supply and services, and agricultural products.

Attitude scale: A set of items designed to elicit respondents' beliefs, feelings, and predispositions or action tendencies about a particular topic.

Attitude toward internationalizing the agricultural education curriculum: An attitude may be defined as a predisposition to act toward an object in a certain manner. The agriscience teacher's attitude toward internationalizing agricultural education curriculum comprises his or her beliefs, feelings, and predisposition or action tendency toward various concepts of internationalizing such programs.

International agricultural education: The broad instructional areas of global agriculture through which students gain an understanding of the geographical, political, and economic factors influencing agriculture; global agricultural production and consumption; trends in the production and consumption of food and fiber; agricultural practices in different countries; agricultural trade and banking practices; communication, transportation, and technological developments influencing agriculture; and cultural and religious differences with implications for agriculture.

Internationalizing Agricultural Education Programs

(IAEP): A set of instructional materials focusing on various aspects of global issues relative to agriculture, prepared by faculty in the Department of Agricultural and Extension Education at MSU for use in teaching at the local level.

Overview of the Remainder of the Dissertation

Chapter II contains a review of literature and research on subjects of interest in this study. Included are sections on definitions of attitude, measurement of attitudes, international agricultural education, and attitudes of teachers toward various educational programs.

The study design, as well as methods and procedures followed in carrying out the study, is the subject of Chapter III. Included are a description of the study population, instrumentation, the independent and dependent variables, and data-collection and data-analysis procedures.

The study findings pertaining to the relationship between agriscience teachers' attitudes toward making their curriculum more internationally focused and the teachers' demographic characteristics, as well as differences in agriscience teachers' attitudes toward making their curriculum more internationally focused, based on whether they received the IAEP instructional materials, are presented in Chapter IV.

Chapter V contains a summary of the study, conclusions drawn from the findings, and recommendations for practice and further research, and implications.

CHAPTER II

REVIEW OF THEORY AND RELATED RESEARCH

This chapter contains a synthesis of selected research and literature that is applicable to the study. Information concerning previous studies was obtained by reviewing Dissertation Abstracts International, the Current Index of Journals in Education, Agricultural Education Magazine, Education Index, and the Education Resources Information Center (ERIC) documents. In searching these sources, no studies on agriscience teachers' attitudes toward making their curriculum more internationally focused were discovered. A few investigations of teachers' attitudes toward various educational programs were found, which appear to be applicable to this study; they are reviewed in this chapter.

Literature related to this study is presented under the following headings: definitions of attitudes, attitude theory, the measurement of attitudes, international agricultural education, and attitudes of teachers toward various educational programs.

Definitions of Attitudes

Much has been written on definitions of attitudes. These writings can be found in publications focusing on studies in psychology, sociology, education, and political science. In addition to discussing the word "attitude," authors have expanded on the theory and nature of attitudes, and the way in which attitude is defined. The succeeding discussion focuses on definitions of attitudes by noted social psychologists.

Krech and Crutchfield (1945) viewed attitude as "an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world" (p. 35). Thurstone and Cave (1929), noted pioneers in the measurement of attitude, stated that "an attitude is the sum total of man's inclinations and feelings, prejudices or biases, preconceived notions, ideas, fears, threats, and convictions about any specific topic" (p. 6). Remmer, Gage, and Rummel (1965) indicated that an attitude is "an emotional tendency, organized through experience to react positively or negatively toward a psychological object" (p. 308). Shaw and Wright (1967) connected beliefs and attitudes by pointing out that attitudes are evaluative systems that reflect the concepts of beliefs.

Allport's (1935) definition of attitude was used in this study; he defined attitude as "a mental and neutral

state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p. 798). He noted that "the concept of attitude is probably the most distinctive and indispensable concept in contemporary American social psychology. No other term appears more frequently in experimental and theoretical literature" (p. 810).

It is apparent from the literature cited above that many definitions of attitude have been offered. Summers (1970) stated that, despite the wide variety of interpretations of the meaning of attitude, there are areas of substantial agreement. He stated that there is general consensus that an attitude is (a) persistent over time, (b) a response to an object, and (c) measurable. Summers further noted that because attitudes cannot be observed directly, they must be inferred from behavior.

Attitude Theory

Inferring Attitude From Behavior

An attitude is a disposition to respond favorably or unfavorably to an object, person, institution, or event. Although formal definitions of attitude vary, most contemporary social psychologists seem to agree that the characteristic attribute of an attitude is its evaluative nature (Bem, 1970; Breer & Locke, 1965, Edwards, 1957; Fishbein & Ajzen, 1975; Hill, 1981; Osgood, Suci, &

Tennenbaum, 1957, Oskamp, 1977). This view is strengthened by the fact that standard attitude-scaling techniques result in a score that locates an individual on an evaluative dimension vis-a-vis the attitude object (Fishbein & Ajzen, 1975; Green, 1954). Ajzen (1988) pointed out that attitude is a hypothetical construct that must be inferred from measurable responses. Given the nature of a construct, these responses must reflect positive or negative evaluations of the attitude object.

Behavior as a Determinant of Attitudes

People have attitudes because they need to give meaning to their behavior. People "explain" their behavior to themselves by convincing themselves that the social objects that benefited from the behavior are intrinsically good and worthy of such positive action. Traditional thinking about the direction of causality in attitude theory may cause a person's behavior to change (Triandis, 1971). The view just described postulates the opposite direction of causality--the behavior causes the attitudes. Sherif, Sherif, and Nebergal (1965) presented the idea that having an attitude means that the individual is no longer neutral toward the referents of an attitude. One is for or against, positively inclined or negatively disposed in some degree toward them--not just momentarily, but in a lasting way, as long as the attitude in question is operative. Once a class of objects

is charged with favorable or unfavorable value for the individual, one sees things related to these objects in a selective way. One's judgment or perception of objects and people in the universe of discourse in question becomes, at the same time, one's evaluation, one's preferential reaction. Attitude-related judgment or perception is inextricably an effective-motivational as well as a cognitive affair.

It is only from behavior that one can infer that an individual has an attitude. In short, attitudes are inferred from characteristic and consistent modes of behavior toward some class of objects, persons, events, and issues over time (Campbell, 1963; Hovland, Janis, & Kelley, 1953; Janis et al., 1959; Sherif & Sherif, 1956; Sherif, et al., 1965).

A Hierarchical Model of Attitude

For many theorists, the distinction between cognition, affect, and conation is more than just a system for classifying responses from which attitudes can be inferred. These theories assume that each response category reflects a different theoretical component of attitude (Katz & Scotland, 1959; Smith, 1947). In this regard Ajzen, (1988) said that attitude is a multidimensional construct consisting of cognition, affect, and conation. Each of these components varies along an evaluative continuum. An agriscience teacher might feel uneasy about an international

agricultural education program thrust (negative affect with respect to the activities involved in the program), but at the same time believe that the program is effective and timely (positive cognitive component) and agree to participate in it (favorable conative component).

The tripartite model of attitude offered by Rosenberg and Hovland (1960), which serves as the starting point of most contemporary analyses, is a hierarchical model that includes cognition, affect, and conation as first-order factors and an attitude as a single second-order factor. In this model, the three components are defined independently and yet constitute the single construct of attitude.

Rosenberg and Hovland's conception of attitudes is shown in Figure 1. The stimuli are grouped in a category that represents the attitude object. The attitude has three components, each of which is measured by a variety of subject responses. Rosenberg and Hovland said that the cognitive representation of the category is the minimum condition for having the attitude. In addition, the cognitive category must become associated with pleasant or unpleasant events or desirable or undesirable goals. When this happens, the category becomes charged with affect. The more pleasant the events, and the more frequently they occur

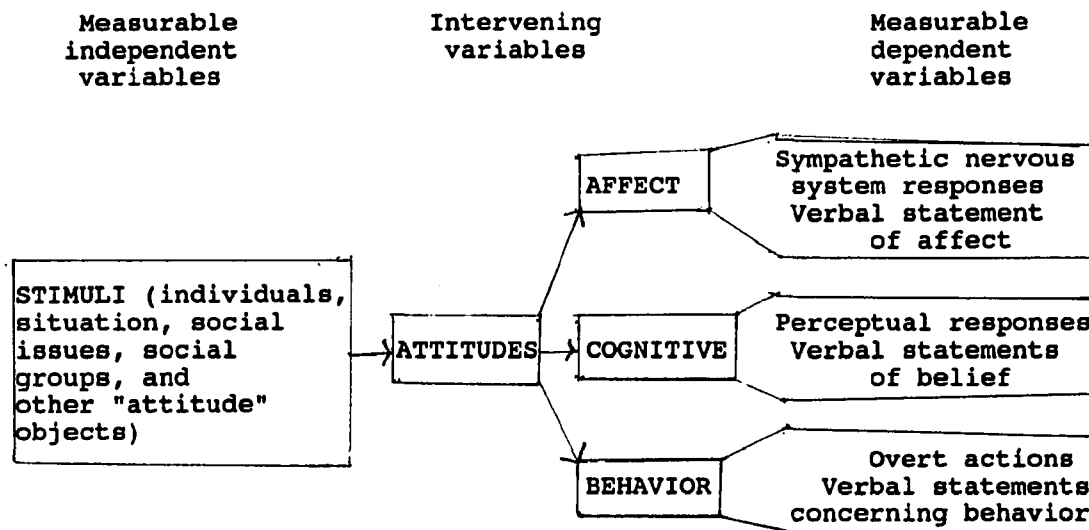


FIGURE 1: Schematic conception of Attitudes (after Rosenberg & Hovland, 1960).

in the presence of the category, the greater is the amount of affect that becomes attached to the category.

Ajzen (1988) stated that attitudes are always inferred from specific responses to the attitude object. The empirical implications of the hierarchical attitude model offer the following account of the way in which attitudes affect behavior. The actual or symbolic presence of an object elicits a generally favorable or unfavorable evaluative reaction, the attitude toward the object. This attitude predisposes cognitive, affective, and conative responses to the object, whose evaluative tone makes up the overall attitude. It follows that agriscience teachers with positive attitudes toward, say, making their curriculum more internationally focused should exhibit various favorable responses with respect to student-related aspects, teacher-

related aspects, and educational linkages of this program. Conversely, agriscience teachers with negative attitudes toward such a program should exhibit unfavorable responses toward this effort.

Measurement of Attitudes

According to the educational psychology literature, the measurement of attitudes has been a highly controversial area of educational and psychological testing. Perhaps the complexity of measuring attitudes has contributed to the controversy surrounding the subject. In discussing the measurement of attitude, Murphy (1972) stated:

Measuring attitude and measuring changes in attitude represents a more complex task than measuring the acquisition of factual or cognitive information. There are, however, techniques that are accurate and appropriate for the task. (p. 11)

Murphy was alluding to the use of attitude scales, which are used extensively to measure attitudes. These scales include statements related to the topic of concern in the particular study involved.

Social psychologists including Thurstone and Cave (1929), Likert (1932), Bird (1940), Edwards and Kilpatrick (1948), and Edwards (1957) have suggested various informal criteria for formulating statements to be used in an attitude scale. These psychologists suggested that statements used in an attitude questionnaire should be simply stated in the present tense and relevant to the topic under consideration. These statements may be used with

Likert's summated rating scale. Because that type of scale was used in this study, it warrants further description.

The Likert technique, in which a continuum is used for scaling the attitudes of individuals, was developed by Rensis Likert with the help of his associate, Gardner Murphy (Likert, 1932). The Likert technique has been discussed widely. Kerlinger (1973) stated:

The summated rating scale seems to be the most useful for behavioral research. It is easier to develop and yields about the same results as the more laboriously constructed equal appearing interval scale. Used with care and knowledge of (their) weaknesses, summated rating scale can be adopted to many needs of behavioral researchers. (p. 49)

In addition, the Likert technique provides precise information about the respondent's degree of agreement or disagreement with particular statements and enables the researcher to include content that is not obviously related to the attitude in question (Oppenheim, 1966). The design of a Likert scale also permits quick responses by the examinee and rapid scoring by the examiner (Best, 1987).

Likert's (1932) scaling technique requires a large number of monotone items, i.e., items having the characteristic that the more favorable the individual's attitude toward the attitude object, the higher the expected score for the item. Reliability of properly designed and tested Likert scales tends to be good, with reliability coefficients of .70 or better (Shaw & Wright, 1967). Likert scales have been criticized for producing only ordinal-level

scores, yet many researchers inappropriately use statistical significance tests associated with higher levels of measurements. Overall, Likert scales tend to perform well when it comes to a reliable, rough ordering of people with regard to a particular attitude. Apart from their relative ease of construction, Likert scales have the advantage of providing precise information about the respondent's degree of agreement or disagreement.

International Agricultural Education

The need to develop an awareness of the global nature of the agricultural industry has become a pressing concern. The National Council for Agricultural Education has initiated a national program related to international education in agriculture that has potential to involve agricultural educators at all levels.

Bobbitt (1988) said that internationalizing the curriculum is an important activity in which universities need to be engaged. He identified five objectives of internationalizing the agricultural education curriculum:

- (1) to acquaint domestic students with an understanding of international applications that might be important in local programs;
- (2) to illustrate that learning the principles of agricultural education is a paramount responsibility of students;
- (3) to make students aware of the many legitimate applications of the principles of agricultural education;
- (4) to point out that the United States model of

agricultural education is just one of many legitimate models; and (5) to show that the agricultural education model used in any situation should and will be determined by the culture, political philosophy, and agricultural and educational system of the locality.

Beeman and Cheek (1990) also emphasized the importance of global involvement in agricultural education programs.

They wrote:

The rationale for increased involvement of University agricultural and extension education departments in international programs is three-fold, namely: (1) it provides an excellent opportunity to provide service and technical expertise to developing countries; (2) faculty involvement in educational programs in other countries develops a better understanding of international agricultural education programs, thus enabling us to better serve international students; and (3) it provides an excellent opportunity to further apply, test, and evaluate principles and components undergirding domestic programs, thus providing valuable "plow back" into the programs. Thus, these activities use and further develop our professional expertise. (p. 6)

Beeman and Cheek pointed out several other personal and programmatic benefits to be gained from participating in international experiences, such as increased interest on behalf of faculty in international education; broadening experiences, trade, and the opportunity for learning new cultures; innovative educational programs; and different governmental structures.

Symons and Cvancara (1990) asserted that the rationale for integrating international concepts into the secondary agricultural education program is rooted in the changes

taking place in high schools, the global economy, and the students themselves. They acknowledged that the curricula in many schools lack an international component. As the world is becoming smaller through technological advances, agricultural students can expect to have more opportunities to interact with people from other countries and cultures. These students need to develop a willingness to cooperate and compete internationally. Such a willingness requires an understanding of other nations as well as respect for political, social, and cultural differences. Students who understand global interdependencies and interrelationships will be able to function better in the many roles that have an international dimension.

In "Agricultural Educators' Role in Global Education: Unprecedented," Martin (1990) noted that the growth area or new frontier for agricultural education has two fronts. One front is the "internationalization" of the United States agricultural education curriculum. The second front is the "agriculturalization" of education in all countries that depend on agriculture for the health and vitality of their economies and the development of their people. Martin asserted that globalization of agricultural education is an unprecedented idea whose time has come.

Pope (1990) stated:

Agriculture no longer is limited to the United States; rather we compete in an international marketplace. Because of this perspective, the National Council for Vocational and Technical

Education in Agriculture . . . has developed and is implementing a program to increase the teaching in agricultural education at all levels about the international relationships and their effect on American agriculture. This program will give supervisors, teacher educators, and teachers the opportunity to experience first hand international agriculture, giving them the opportunity to infuse international components into the curriculum through in-service education, thus making American agriculture more competitive in a world economy. (p. 5)

Martin (1989) gave several reasons for including instruction relative to international agriculture in local vocational agriculture programs. He wrote:

Students need a global perspective if they are to be functional and vital citizens of the world. The truly educated person in today's world cannot function within narrow perspectives. We need citizens who have a knowledge of world agriculture, geography and the uses of products from around the world. For the economics of agriculture to work in this world, all citizens need to have an understanding of the cultural differences and similarities of all those involved. Only then can we expect to strengthen communication. (p. 4)

Until recently, the role of agriculture in international education has been limited. As this role is expanded, United States agricultural teachers will have an even more vital part to play, both at home and abroad (Moore, 1987). Global involvement has evolved from various dimensions, such as developing skills, teaching, and evaluating local vocational agriculture programs. In 1979, Thuemmel and Welton (1983) conducted a nationwide assessment of teacher education activities in international agriculture. This study was conducted on behalf of the

American Association for Teacher Education in Agriculture (AATEA), which has included the promotion of international agricultural education as a basic function of international agricultural development.

To provide a professional association and network of agricultural teachers concerned with advancing agricultural education programs in developing countries, the Association for International Agricultural and Extension Education (AIAEE) was formed in 1984 (Welton, 1987). Welton said that nationwide studies and the AIAEE have served to bring a new meaning and emphasis to international agricultural education. Similarly, Braun (1987), a retired vocational agriculture instructor, asserted that "a local vocational agriculture program has an obligation to incorporate an international understanding of agriculture into its curriculum" (p. 9).

Bobbitt and Meaders (1987), professors in the Department of Agricultural and Extension Education at Michigan State University, emphasized that:

Secondary agricultural education is a logical place for international agricultural education concepts to be introduced to future participants in the U.S. agricultural/agribusiness work force. Just as it played a key role in improving leadership skills in the rural farm community of America, secondary agriculture must play a more prominent role in educating the agricultural industry of important international concepts. (pp. 13-14)

In their article entitled "Focus on the Jamaican Agricultural Education Project," Riley and Richardson (1987)

showed that agricultural teachers are in a unique position to bridge the gap between education and the agricultural sector. The Jamaican agricultural education project is an example of a successful international agricultural education program.

Jones (1985) assessed the motivational factors affecting the involvement of College of Agriculture faculty members in international development activities. His main purpose was to determine faculty members' motivation for such involvement. Jones identified demographic characteristics of faculty members included in the study, determined sources of participants' original motivation for involvement in development work, and devised strategies to stimulate motivation for development work. The major findings of the study were the following:

1. Few younger, untenured faculty were involved in development work. It was primarily the older, more established faculty who participated in international development activities.

2. Faculty with experience in developing countries reported that their experience was valuable and applicable to their university assignments and duties.

3. Respondents generally agreed that their original motivation for involvement in international development work had been influenced by the importance, nature, and personal

value of development work in fulfilling their intrinsic needs.

4. Important strategies to stimulate motivation in development work included receiving recognition and rewards for professional efforts in development, participating in assignments in developing countries, and receiving information on university programs in developing countries.

Attitudes of Teachers Toward Various Educational Programs

No literature was found that addressed agriscience teachers' attitudes toward making their curriculum more internationally focused. However, the research that is reviewed in this section is relevant to the study because it concerns teachers' attitudes toward other types of educational programs.

Suyuthie (1989) conducted a study on the attitudes of general senior high school teachers toward career guidance in Bankulu, Indonesia. These teachers expressed positive attitudes about the career guidance program. The researcher also found that urban and rural teachers differed significantly in their attitudes toward the program. Rural teachers had more positive attitudes toward the program than did urban teachers.

Irwin (1988) investigated the attitudes of elementary school teachers in Southern Alberta, Canada, toward multicultural education. He used a survey method to gather the

necessary data. Irwin found that teachers in urban and rural districts did not differ significantly in their attitudes toward multicultural education in elementary schools. They expressed a positive attitude even though they did not favor mandating a multicultural education program in the province. Age and years of teaching experience did not significantly affect teachers' attitudes toward multicultural education.

Suriyawongse (1988) examined the attitudes of faculty members in the open universities in Thailand toward media technologies, comparing respondents in terms of age, education, teaching experience, and current position. The researcher found that the participants did not differ significantly in their attitudes toward media technologies, based on their age, education, and teaching experience.

Yothapirom (1988) studied the attitudes of Thai teachers' college faculty toward voluntary participation in rural development activities. He found that faculty members held moderately favorable attitudes toward voluntary participation in such activities, but they had weak intentions to engage in voluntarism.

Siefferman (1986) undertook a study to determine the attitudes of postsecondary vocational teachers in Georgia concerning supervision of instruction. He also investigated whether there was a relationship between teachers' attitudes and their age, degree status, and years of teaching

experience. Siefferman found that the teachers had positive attitudes toward supervision of instruction. He also found a linear relationship between teachers' attitudes and the personal characteristics listed above.

Khalatbari-Tonekaboni (1986) studied the perceptions of faculty members regarding the contributions of international academic or educational activities to their personal, academic, international, and professional development. He also investigated the effect of such factors as educational background and years of teaching experience on those perceptions. Faculty members expressed high, mild, and low degrees of agreement concerning the contribution of these international activities to their personal, academic, international, and professional development. Educational background and years of teaching experience significantly influenced faculty members' perceptions of some aspects of their development.

Crews (1986) undertook a study in Virginia to determine (a) teachers' attitudes concerning merit pay and (b) whether selected demographic and personal characteristics were related to teachers' attitudes toward such pay. Crews found that a majority of the teachers in her study disagreed with the concept of merit pay. She also found that teachers' attitudes toward merit pay were significantly related to their years of teaching experience, membership in teacher associations, and teaching level.

Smith (1985) studied the influence of elementary teachers' attitudes toward black dialect when teaching young black children. The investigator sought to determine whether a significant relationship existed between teachers' age, educational background, and years of teaching experience and their attitudes toward first-grade students who spoke a black dialect. The findings revealed no significant relationship between teachers' attitudes and their age or educational background. However, a significant relationship was found between years of teaching experience and teachers' attitudes toward first graders who spoke a black dialect.

Smith (1981) investigated the attitudes of faculty members in Kentucky public community colleges toward continuing education. A secondary purpose was to determine whether these attitudes were related to selected demographic factors. Concerning this relationship, Smith found that (a) there was no significant difference in faculty members' attitudes based on years of teaching experience in the community college setting, and (b) faculty who were under 30 years of age had more positive attitudes toward continuing education in community colleges than did those in the 51 to 60 age group. In general, faculty members' attitudes toward continuing education in Kentucky community colleges were found to be positive.

Concerning the relationship between teaching experience and teachers' attitudes, Brooks (1974) wrote:

Teaching experience and training have been shown to be significantly related to a number of teacher's characteristics, including teacher attitudes. There is considerable research which shows that the attitudes of teachers change in a negative direction as a result of teaching experience. This is especially true during the first year or two of the teaching. There is some evidence that the older occupational orientation teachers are more educated to the needs of the students and the teacher's role in providing these needs. The attitudes of the occupational orientation teachers likely will change in the positive direction as a result of experience. (p. 45)

Lyons (1982) investigated factors related to attitudes toward the Future Farmers of America (FFA) held by secondary agricultural teachers in the eastern region of Virginia. He found a significant positive relationship between years of teaching experience in vocational agriculture and teachers' attitudes toward the FFA. Glazier (1975) also discovered that teachers exhibited a more positive attitude toward vocational agriculture as they increased in age and progressed in teaching experience.

Ueland (1965) studied the attitudes of high school teachers in Minnesota toward agricultural education. He found that teachers in schools with vocational agriculture departments tended to have more favorable attitudes than teachers in schools without such a department. Likewise, Thompson (1966) discovered that former vocational teachers

who had a rural orientation or background had favorable attitudes toward vocational education.

No literature was located on the relationship between the attitudes of agricultural teachers toward making their curriculum more internationally focused and the teachers' membership in professional organizations, reading Agricultural Education Magazine, receiving IAEP instructional materials, reading newspapers for agricultural information, participating in national and international seminars/conferences, cosmopolitanism, mobility, and teaching area. This study was intended to provide information on such relationships.

CHAPTER III

METHODS AND PROCEDURES

The study design is described in the first section of this chapter, followed by a discussion of the independent and dependent variables, and the population that was studied. The methods and procedures used in conducting the study also are explained.

Design of the Study

The design of this study was descriptive survey research. That is, the study was designed to describe the attitudes and demographic characteristics of agriscience teachers and to determine whether there was a difference in those teachers' attitudes toward making their curriculum more internationally focused, based on the demographic characteristics examined. The researcher also attempted to discover whether there was a difference between the Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials, with regard to their attitudes toward student-related aspects, teacher-related aspects, and educational linkages of making the curriculum more internationally focused.

Data were collected by means of a questionnaire that was sent to secondary school agriscience teachers in Michigan. The independent variables included age, education, years of teaching experience, membership in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine, receiving IAEP instructional materials, reading newspapers for agricultural information, residence, mobility, participation in national and international seminars/conferences, and primary teaching area. The dependent variable was agricultural teachers' attitudes toward making their curriculum more internationally focused.

Independent and Dependent Variables

In descriptive research, the measurement and selection of variables constitute important tasks. A research hypothesis contains at least two important elements: an independent variable and a dependent variable. An independent variable is the factor that is manipulated by the experimenter to ascertain its relationships to an observed phenomenon. A dependent variable is the factor that appears, disappears, or varies as the experimenter introduces, removes, or varies the independent variables. (Townsend, 1953). The independent variables in this study were the selected demographic characteristics of the respondents. The dependent variable was the agriscience

teachers' attitudes toward making their curriculum more internationally focused.

The Study Population

This study of the attitudes of Michigan agriscience teachers was conducted on a statewide basis. A current list of all the secondary school agriscience teachers in Michigan during 1990-91 was obtained from the Department of Agricultural and Extension Education at Michigan State University. The target population for the study was all 168 secondary school agriscience teachers. The accessible population was 160 secondary school agriscience teachers in Michigan.

Development of Instrument

An instrument consisting of two sections was used to collect data for the study. The first section of the instrument contained statements concerning three aspects of internationalizing agricultural education curriculums: student-related aspects, teacher-related aspects, and educational linkages. The review of literature provided the theoretical basis for developing the attitudinal statements concerning teachers making their curriculum more internationally focused. The respondents indicated their attitudes about each of the statements on a 5-point Likert-type attitudinal scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Borg and Gall (1979) stated that "Likert scales are probably the most common type of attitude

scales constructed" (p. 299). Edward's (1957) informal criteria for constructing attitude statements were used as the basis for developing the items relating to each concept concerning teachers making their curriculum more internationally focused (see Appendix G).

The second section of the instrument contained items concerning personal characteristics of the respondents, including age, education, years of teaching experience, membership in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine, receiving IAEP instructional materials for internationalizing agricultural education programs, reading newspapers for agricultural information, residence, mobility, participation in national and international seminars/conferences, and primary teaching area.

Validity

The research questionnaire is usually deemed to be valid when the objectives of the study are reflected in the questionnaire. Babbie (1986) defined validity as "a descriptive term used for a measure that accurately reflects the concept that it is intended to measure" (p. 56).

According to Oppenheim (1966), a panel of experts should be selected to agree on the content validity of the statements in a questionnaire. He stated that content validity is of essence and necessity based on experts' judgment. Thus, a jury of experts consisting of eight

professors from the Agricultural and Extension Education Department, one from the Resource Development Department at Michigan State University, and one from a secondary school in Michigan were used to establish the content validity of the instrument (see Appendix B). Members of the jury were selected on the basis of their expertise in agricultural education and/or in instrument development. The jury of experts was sent a cover letter, a copy of the survey instrument, and a page on which to write their comments about the instrument and suggestions for improving it (see Appendix C). Based on the comments and suggestions made by the jury of experts, 11 of the original 105 statements were deleted and certain statements were modified and/or reorganized. After the instrument was improved in this way, it was prepared in booklet form for pilot testing.

Pilot Testing

Wiersma (1985) stated that a pilot study is a preliminary use of the instrument with (usually) a small number of individuals. Borg and Gall (1979) also indicated that a researcher should pilot test a questionnaire with a sample of individuals similar to the group one wishes to use in the research before using the questionnaire in the actual study.

Because all of the secondary school agriscience teachers in Michigan were included on the study, the researcher's advisor suggested using eight retired

agriscience teachers, eight graduate students who were agricultural teachers before being admitted for graduate study in the Department of Agricultural and Extension Education, and one FFA specialist in the department for the pilot testing of the instrument. The eight retired agriscience teachers were selected randomly from the 1990-91 list of retired secondary school agricultural teachers in Michigan. A cover letter, return-addressed envelope, and the instrument were sent to the pilot-test group on March 15, 1991, with encouragement to return the completed instruments by April 12, 1991. Twelve of the 17 instruments were returned and used for reliability and item analysis.

Reliability

Ary et al. (1990) described the reliability of a measurement instrument as the degree of consistency with which an instrument measures what it is supposed to measure. Cronbach's alpha procedure was used to obtain reliability estimates of the attitudinal items in the instrument. This procedure is used to estimate reliability by determining how all items on a single test relate to all other items and to the test as a whole (Ary et al., 1990). To test the reliability of the instrument, pilot data were analyzed using the SPSS/PC+ version of the Statistical Package for the Social Sciences (SPSS, 1990) in the Department of Agricultural and Extension Education. The reliability of the instrument was calculated on the basis of items

addressing student-related aspects, teacher-related aspects, and educational linkages of teachers making their curriculum more internationally focused. The reliability coefficients for the three components were .91, .93, and .94, respectively. Borg and Gall (1979) indicated that some studies can be conducted satisfactorily with an instruments reliability of .75. However, Borg (1981) pointed out that attitude scales with a reliability coefficient of .79 are considered to be in the median range, whereas those with coefficients above .79 are considered to have high reliability. Thus, according to Borg and others, the reliability of this instrument was very high and acceptable.

Item Analysis

To determine the merit of the items to be included in the attitudinal scale, an item analysis (Frary, 1977) was conducted following the pilot test. Experts were consulted concerning the item analysis in order to prepare the final version of the questionnaire. These experts included the researcher's doctoral committee members, four other professors from the Department of Agricultural and Extension Education, and a statistician from the Michigan State University Computer Center. All of these individuals were knowledgeable about questionnaire item analysis. The item discrimination index analysis was calculated by correlating item scores with total scale scores; this procedure was done by using SPSS/PC+.

Ary et al. (1990) indicated that each item should correlate at least .25 with the total score. Items that have a very low or negative correlation with the total score should be eliminated because they are not measuring the same thing as the total scale and hence are not contributing to the measurement of attitude. Two items on teacher-related aspects and one on educational linkages were deleted because they had a negative and a low level of association ($<.20$) with the total scores. The final version of the instrument was revised on the basis of reliability, item analysis results, and the suggestions and comments of the jury of experts. Thus, the instrument sent to the study population contained 34 statements on student-related aspects of teachers making their curriculum more internationally focused, 28 statements on teacher-related aspects, and 29 statements on educational linkages.

Human Subjects Approval

Before initiating this study, the researcher forwarded the instrument and a statement regarding the purpose of the study to the Chairperson of the Michigan State University Committee on Research Involving Human Subjects (UCRIHS) for clearance. Such clearance was necessary because the study involved human subjects. Approval was granted to conduct the research (see Appendix A).

Collection of Data

One set of mailing labels for all the agriscience teachers in Michigan was obtained from the Department of Agricultural and Extension Education, Michigan State University. The first mailing was sent to all 160 agriscience teachers on April 30, 1991. A package containing a cover letter explaining the purpose of the study, the questionnaire, and a stamped envelope addressed to the researcher (coded for follow-up purposes) were included in the mailing (see Appendix D). Potential respondents were assured that their replies would be kept confidential; they were encouraged to complete and return their questionnaires in 10 days. The response rate from the first mailing was 44% (70). Ten days later, a reminder letter along with a thank-you note to those who had responded were mailed to all potential participants on May 9, 1991 (see Appendix E). The response rate increased to 71% (114). A second instrument and a return-addressed stamped envelope (different color of stamp and envelope) were sent by certified mail to 46 nonrespondents on May 20, 1991, with a cover letter urging them to return their questionnaire by June 10, 1991 (see Appendix F). The response rate increased to 88% (141).

Borg (1981) indicated that a minimum response of 70% is needed to place confidence in the findings. Babbie (1986) suggested that a response of 70% or more is very good.

Kerlinger (1973) reported that a minimum response of 80% is needed to allow one to generalize the findings. Some researchers (Clausen & Ford, 1947; Newman, 1962) have found that late respondents are often similar to nonrespondents; thus, one should determine the possible nature of the replies of nonrespondents by statistically comparing early respondents to late respondents. In this study, respondents were dichotomized into those who responded early and those who responded late. These two groups were compared statistically to ascertain whether any differences existed between the groups. The researcher found no significant difference in the responses of the two groups.

Data-Analysis Procedures

Data collected from the respondents were coded for processing and analysis. The computer facilities in the Agricultural and Extension Education Department at Michigan State University were used to analyze the data. The SPSS/PC+ computer programs were used to perform the data analysis.

Descriptive statistics were used to summarize the data pertaining to the personal characteristics of the respondents. Frequency counts and percentages, as well as means and standard deviations, were calculated for the descriptive data.

A Likert-type scale was used to measure respondents' attitudes toward making their curriculum more

internationally focused. A rating of 1 indicated a strongly unfavorable attitude, and a rating of 5 indicated a strongly favorable attitude. Negative items were eliminated according to the suggestions and comments made by the jury of experts. Rubin and Babbie (1989) indicated that the appearance of a negation in a questionnaire item paves the way for easy misinterpretation. Some respondents will agree with the negative statement when they are really in favor of it, and others will agree when they really oppose it. So the researcher may never know the truth. The respondents' individual mean scores for the attitudinal statements were calculated to discover their level of attitudes toward various aspects of making their curriculum more internationally focused.

T-tests and analysis of variance (ANOVA) were used to determine whether there were significant differences between and among groups of agricultural teachers with regard to their attitudes toward internationalizing their curriculum, based on selected demographic characteristics. Tukey's multiple-range test was employed to isolate the source of significant differences. Throughout the study, a .05 probability level with an accompanying 95% confidence level was used as the basis for rejecting a null hypothesis.

The results of the data analyses are presented in Chapter IV.

CHAPTER IV

FINDINGS AND DISCUSSION

The findings of the study are presented in two sections. The demographic characteristics of agriscience teachers who completed the survey instrument, these teachers' attitudes toward various aspects of making their curriculum more internationally focused, and the result of testing the first 14 hypotheses are discussed in the first section. In the second section, the attitudes of agriscience teachers who received the IAEP instructional materials and those who did not receive the materials with regard to making their curriculum more internationally focused are explored, and the results of the related hypothesis tests are presented.

Demographic Characteristics of the Respondents

Fishbein and Ajzen (1975) noted in their theory of reasoned action that attitudes depend on behavior. Attitude is a determinant of behavior, and an individual's attitudes are determined to a large extent by his or her personal characteristics. Thus, the researcher assumed that the

attitudes of the agriscience teachers in this study would be influenced by their demographic characteristics. Twelve demographic characteristics of agriscience teachers were identified for examination in this study, in an attempt to determine whether they influenced respondents' attitudes toward making their curriculum more internationally focused. These characteristics included age, education, years of teaching experience, membership in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine, receiving IAEP instructional materials, reading newspapers for agricultural information, residence, mobility, participation in national and international seminars/conferences, and primary teaching area.

Age

The respondents ranged in age from 25 to 60 years; the average age was 39.98 years. For analysis purposes, age of the respondents was broken into four categories as shown in Table 1.

As shown in Table 1, the largest proportion (40%) of agriscience teachers were 31 to 40 years old, compared to 29% who were 41 to 50 years old. Sixteen percent of the respondents were 25 to 30 years old, whereas only 15% were 51 to 60 years old. More than one-half (56%) of the respondents were 40 years or younger.

Table 1

Distribution of Agriscience Teachers
According to Their Age

Categories	Number	Percent
25-30 years old	23	16.3
31-40 years old	56	39.7
41-51 years old	41	29.1
51-60 years old	21	14.9
Total	141	100.0

Education

Table 2 shows the classification of agriscience teachers according to their level of formal education. Higher education is necessary to understand the global social, cultural, economic, and political issues and to use the innovations emerging from different countries.

Table 2

Distribution of Agriscience Teachers
According to Their Level of Education

Categories	Number	Percent
< Bachelor's degree	2	1.4
Bachelor's degree	58	41.0
Master's degree	47	33.5
More than Master's	34	24.1
Total	141	100.0

As shown in the Table 2, two-fifths (41%) of the respondents had a bachelor's degree. One-third (34%) had a master's degree, whereas 24% had more education than a master's degree; only two (1.4%) agriscience teachers had less than a bachelor's degree. The highest proportion (42%) of respondents had a bachelor's degree or less.

All four categories shown in Table 2 could not be used in the ANOVA test. Because there were only two respondents in the category of "less than a bachelor's degree," this category was merged with the "bachelor's degree" category to form a combined category called "bachelor's degree or less." Thus, the three categories used in conducting the ANOVA test were as follows:

Categories	Number	Percent
Bachelor's or less	60	42.4
Master's degree	47	33.5
More than Master's	34	24.1
Total	141	100.0

Teaching Experience

Data concerning the teaching experience of the agriscience teachers are shown in Table 3. More than two-thirds (69%) of the respondents had 10 years or more of teaching experience. One-fourth (25%) of the respondents had 2 to 9 years of teaching experience, and only 6% had

fewer than 2 years. Thus the majority (69%) of the teachers had a high level of teaching experience.

Table 3

Distribution of Agriscience Teachers
According to Their Teaching Experience

Categories	Number	Percent
Fewer than 2 years	8	5.7
2-5 years	19	13.5
6-9 years	17	12.1
10-13 years	27	19.1
14 years or more	70	49.6
Total	141	100.0

All five categories of agriscience teachers shown in Table 3 could not be used in the ANOVA analysis. Just eight respondents were in the "fewer than 2 years of teaching experience" category. Hence, this category was merged with the "2 to 5 years of teaching experience" category to form a combined category called "fewer than 6 years of experience." Hence, the four categories used in conducting the ANOVA test were as follows:

Categories	Number	Percent
Fewer than 6 years	27	19.2
6-9 years	17	12.1
10-13 years	27	19.1
14 years or more	70	49.6
Total	141	100.0

Membership in Professional Societies/Organizations During the Last Five Years

Respondents' membership in professional societies/organizations was quantified by computing a score for membership in each professional society/organization to which they belonged; a weight of 1 was assigned for each society/organization. Responses to Item 11 in Section II of the questionnaire were used to determine the membership score of the respondents. The range of memberships was 1 to 10, the average being 4.1. On the basis of the computed scores, the respondents were classified into four categories, as shown in Table 4.

Almost one-third (32%) of the respondents had membership in four societies/organizations, whereas 31% had membership in fewer than four. Slightly more than one-fifth (21%) of the respondents had membership in five societies/organizations, compared to 17% having membership in more than five societies/organizations.

Table 4

Distribution of Agriscience Teachers According
to Their Membership in Professional
Societies/Organizations

Categories	Number	Percent
< 4 societies	42	30.9
4 societies	43	31.6
5 societies	28	20.6
> 5 societies	23	16.9
Total	135	100.0

Cosmopolitanism of Agriscience Teachers

The term "cosmopolitanism" refers to the orientation of an individual external to his/her own social system. A score for cosmopolitanism was computed on the basis of visits by the respondents to six different types of places as listed in Item 13 in Section II of the questionnaire. The respondents indicated whether they visited those places frequently, occasionally, rarely, or never. Weights assigned to these responses were 3, 2, 1, and 0, respectively. A respondent's cosmopolitanism score was obtained by adding the weights for his or her responses to all six places listed in the questionnaire. Cosmopolitanism scores could range from 0 to 18; 0 indicated no cosmopolitanism and 18 very high cosmopolitanism. The computed cosmopolitanism scores of the agriscience teachers ranged from 0 to 18; the average score was 9.36. Based on the calculated scores, the

respondents were classified into the following three categories:

Categories	Scores
Low cosmopolitanism	0 - 6
Medium cosmopolitanism	7 - 12
High cosmopolitanism	13 - 18

As shown in Table 5, the highest proportion (70%) of respondents had medium cosmopolitanism; 14% had high cosmopolitanism, compared to 16% having low cosmopolitanism. The findings revealed that all of the respondents had some cosmopolitanism; however, most of them had neither low nor high cosmopolitanism.

Table 5

Distribution of Agriscience Teachers
According to Their Cosmopolitanism

Categories	Number	Percent
Low cosmopolitanism	23	16.3
Medium cosmopolitanism	99	70.2
High cosmopolitanism	19	13.5
Total	141	100.0

Reading Agricultural
Education Magazine

More than three-fourths (77%) of the respondents read Agricultural Education Magazine; 23% did not (see Table 6).

Table 6

Distribution of Agriscience Teachers According to
Their Reading of Agricultural Education Magazine

Categories	Number	Percent
No	32	22.7
Yes	109	77.3
Total	141	100.0

Number of Issues of Agricultural Education Magazine Read During 1990-91

Agriscience teachers who read Agricultural Education Magazine were asked how many issues they read during 1990-91. As shown in Table 7, more than one-third (35%) of the respondents read two to five issues of Agricultural Education Magazine, compared to 28% who read six to nine issues. One-fourth (25%) of the respondents read 10 or more issues of the magazine, whereas 12% read fewer than two issues during that period. Hence a majority of the respondents read Agricultural Education Magazine.

IAEP Instructional Materials Received

Almost one-half (48%) of the respondents had not received any instructional materials relative to making their curriculum more internationally focused (see Table 8). Fifty-two percent had received such materials, but they commented that they needed additional materials before they

would be able to teach international agriculture to their students.

Table 7

Distribution of Agriscience Teachers According to the Number of Issues of Agricultural Education Magazine Read During 1990-91

Categories	Number	Percent
Fewer than 2 issues	13	11.9
2 to 5 issues	38	34.9
6 to 9 issues	31	28.4
10 or more issues	27	24.8
Total	109	100.0

Table 8

Distribution of Agriscience Teachers According to IAEP Instructional Materials Received

Categories	Number	Percent
No	67	47.5
Yes	74	52.5
Total	141	100.0

Reading of Newspapers for Agricultural Information

Almost four-fifths (78%) of the respondents read newspapers for agricultural information, whereas 22% did not

(see Table 9). The findings indicate that a major proportion of these agriscience teachers were interested in learning more about current issues pertaining to agriculture at home and abroad.

Table 9

Distribution of Agriscience Teachers According
to Their Reading of Newspapers for
Agricultural Information

Categories	Number	Percent
No	31	22.0
Yes	110	78.0
Total	141	100.0

Agriscience teachers who read newspapers for agricultural information were asked to furnish the names of those newspapers. Twenty-six newspapers were mentioned. The Detroit Free Press scored the highest among the readers, followed by Farmers' Advance, the Lansing State Journal, the Grand Rapids Press, Michigan Farmer, the Detroit News, and the Wall Street Journal (see Table 10).

Table 10

Distribution of Respondents According
to Newspapers Read

Newspapers	Number	Newspapers	Number
Detroit Free Press	31	Farmers' Exchange	3
Farmers' Advance	18	Record Eagle	2
Lansing State Journal	13	Bay City Times	2
Grand Rapids Press	10	Farm Land News	1
Wall Street Journal	9	Alpena News	1
Michigan Farmer	9	Pioneers	1
Detroit News	9	Morning Sun	1
Saginaw News	5	Western LSTK Journal	1
Successful Farmers	3	Kalamazoo Gazette	1
USA Today	3	Tri-City Times	1
Battle Creek Engineers	3	South Bend Trif	1
Flint Journal	3	Huron Tribune	1
Farm Journal	3		

Residence

The data shown in Table 11 indicate that more than two-fifths (45%) of the respondents lived in a rural farm area and 25% lived in a rural nonfarm area. Slightly more than one-fifth (21%) of the respondents lived in a suburban area, and only 9% lived in an urban locale. The highest proportion (70%) of respondents lived in a rural area.

Mobility of Respondents During the Past 10 Years

Data shown in Table 12 indicate that almost two-fifths (41%) of the respondents had never changed their residence during the past 10 years, whereas 28% had changed their residence at least once. Fifteen percent of the respondents had changed their residence two to three times, compared to

11% who had changed four to six times; only 5% had changed more than six times. Hence, the majority of the respondents were not mobile in terms of changing their residence.

Table 11
Distribution of Agriscience Teachers
According to Their Residence

Categories	Number	Percent
Rural farm	63	44.7
Rural nonfarm	35	24.8
Suburban	30	21.3
Urban	13	9.2
Total	141	100.0

Table 12
Distribution of Agriscience Teachers According
to Their Change of Residence During
the Past 10 Years

Categories	Number	Percent
Never changed	58	41.1
1 time	40	28.4
2-3 times	21	14.9
4-6 times	15	10.6
7-10 times	5	3.5
More than 10 times	2	1.4
Total	141	100.0

All five categories shown in Table 12 could not be used in the ANOVA test. Only five respondents were in the "7 to 10 times" category, and only two were in the "more than 10 times" category. Hence, these two categories were merged with the "4 to 6 times" category to form a combined category called "4 or more times." Hence, the four categories used in conducting the ANOVA test were as follows:

Categories	Number	Percent
Never changed	58	41.1
1 time	40	28.4
2-3 times	21	14.9
4 or more times	22	15.6
Total	141	100.0

Participation in National Seminars

As shown in Table 13, almost half (46%) of the respondents had participated in fewer than two national seminars. Slightly more than one-fourth (26%) of the agriscience teachers had participated in two to five seminars during their professional lives, compared to 10% of the respondents who had participated in six to nine seminars. Nine percent of the respondents had participated in 10 to 13 seminars and in 14 or more seminars. Thus, findings revealed that a majority (72%) of the agriscience

teachers in this study had a very low level of participation in national seminars and conferences.

Table 13

Distribution of Agriscience Teachers According to Their Participation in National Seminars

Categories	Number	Percent
Fewer than 2 seminars	65	46.1
2-5 seminars	37	26.2
6-9 seminars	14	9.9
10-13 seminars	13	9.2
14 or more seminars	12	8.5
Total	141	100.0

Participation in International Seminars

The greatest proportion (82%) of respondents had participated in fewer than two international seminars, whereas 13% had participated in two to five seminars during their professional lives (see Table 14). Only 6% of the agriscience teachers had participated in more than five international seminars. Thus, it can be seen that the responding teachers had a very low level of participation in international seminars.

All five categories shown in Table 14 could not be used in testing the hypothesis. The numbers of respondents in the "6 to 9 seminars," "10 to 13 seminars," and "14 or more seminars" categories were 5, 0, and 3, respectively, which

were not sufficient for a t-test or ANOVA. Thus, those three categories were merged with the category "2 to 5 seminars" to form a combined category called "2 or more seminars." The two categories used for conducting the t-test were as follows:

Categories	Number	Percent
Fewer than 2 seminars	115	81.6
2 or more seminars	26	18.4

Table 14

Distribution of Agriscience Teachers According to Their Participation in International Seminars

Categories	Number	Percent
Fewer than 2 seminars	115	81.6
2 - 5 seminars	19	12.9
6 - 9 seminars	5	3.5
10-13 seminars	0	0.0
14 or more seminars	3	2.1
Total	141	100.0

Primary Area of Teaching

Table 15 contains data concerning the respondents' primary teaching areas in the secondary schools. More than two-fifths (41%) of the respondents primarily taught agriscience and natural resources, whereas 21% taught

horticulture, 14 taught agri-production, 13% taught agri-mechanics, and only 11% taught biology/science subjects. The greatest proportion (62%) of respondents were teaching agriscience and natural resources and horticulture.

Table 15

**Distribution of Agriscience Teachers According
to Their Primary Teaching Areas**

Categories	Number	Percent
Agriscience and Natural Resources	58	41.1
Horticulture	30	21.3
Agri-Mechanics	18	12.8
Agri-Production	19	13.5
Others(Biology/Science)	16	11.3
Total	141	100.0

**Attitudes of Agriscience Teachers Toward Various
Aspects of Making Their Curriculum More
Internationally Focused**

An attitude is a predisposition to respond favorably or unfavorably to an object. The success of helping teachers make their curriculum more internationally focused in secondary schools is directly related to the agriscience teachers' attitudes toward various aspects of these program thrusts. Therefore, it is necessary to understand the attitudes of agriscience teachers toward making their curriculum more internationally focused, in order to provide

them with the proper guidance for planning and executing such programs.

Three different aspects of making their curriculum more internationally focused were considered in the study. These included (a) student-related aspects, (b) teacher-related aspects, and (c) educational linkages of the programs. To understand the respondents' overall attitudes toward making their curriculum more internationally focused, one needs to have an idea about their attitudes concerning each of the above-mentioned aspects. A discussion of respondents' attitudes regarding each of the aspects, as well as their overall attitudes, is presented in this section.

Agriscience Teachers' Attitudes Toward
Student-Related Aspects of Making
Their Curriculum More Inter-
nationally Focused

Respondents' mean scores for the 34 Likert-type statements concerning student-related aspects of making their curriculum more internationally focused were calculated using the SPSS/PC+ computer program. The scores could range from 1.00 to 5.00, 1.00 indicating highly unfavorable attitudes toward making their curriculum more internationally focused and 5.00 indicating highly favorable attitudes toward this issue. Five categories were developed for interpreting the attitudes of agriscience teachers toward student-related aspects of making their curriculum more internationally focused as shown below:

Categories	Scores
Highly unfavorable	< 1.50
Unfavorable	1.50 - 2.49
Neutral	2.50 - 3.49
Favorable	3.50 - 4.49
Highly favorable	> 4.49

Computed mean scores of the respondents ranged from 3.18 to 5.00, the average being 4.11. Thus, the respondents were distributed among only three categories, as shown in Table 16.

The data in Table 16 indicate that almost three-fourths (72%) of the teachers had favorable attitudes toward student-related aspects of making their curriculum more internationally focused, and about one-fifth (21%) of the respondents had highly favorable attitudes; only 8% had neutral attitudes.

Table 16

Distribution of Agriscience Teachers According to Their Attitudes Toward Student-Related Aspects of Making The Curriculum More Internationally Focused

Categories	Number	Percent
Neutral	11	7.8
Favorable	101	71.6
Highly favorable	29	20.6
Total	141	100.0

The skewness of distribution was -0.128. This negatively skewed value indicates sufficient evidence that most of the respondents fell at or above the average score. The descriptive statistics (mean and standard deviation) for each statement were also calculated (see Appendix H). All of the means ranged from 3.50 to 4.55 except the mean for the statement, "Through IAEP, students will have an opportunity to interact with people in other parts of the world" (Mean = 3.44).

The findings showed that, in general, the respondents had favorable attitudes toward student-related aspects of making their curriculum more internationally focused. The respondents agreed that students should understand (a) the basic geography of the state, nation, and world; (b) global agriculture and its effect on US agriculture; (c) future changes in global agriculture; (d) interaction with people of other countries; (e) international marketing systems; (f) culture, infra-structure, standard of living, economy, politics, and natural resources of other countries; (g) the global perspective with respect to career opportunities; and (h) interdependency.

Attitudes of Agriscience Teachers Toward
Teacher-Related Aspects of Making Their
Curriculum More Internationally Focused

The survey instrument contained 28 Likert-type statements concerning teacher-related aspects of making the

curriculum more internationally focused. Respondents' individual mean scores for the 28 statements were calculated by using SPSS/PC+. The scores could range from 1.00 to 5.00, 1.00 indicating highly unfavorable attitudes and 5.00 indicating highly favorable attitudes toward teacher-related aspects of making their curriculum more internationally focused. In analyzing respondents' mean scores for these statements, the means were interpreted as follows:

Categories	Scores
Highly unfavorable	< 1.50
Unfavorable	1.50 - 2.49
Neutral	2.50 - 3.49
Favorable	3.50 - 4.49
Highly favorable	> 4.49

Computed mean scores of the respondents ranged from 2.07 to 4.75, the average being 3.71. Thus, the respondents were distributed among only four categories, as shown in Table 17.

The data presented in Table 17 indicate that more than three-fifths (64%) of the agriscience teachers had favorable attitudes toward teacher-related aspects of making their curriculum more internationally focused, whereas 26% had neutral attitudes; 4% had unfavorable attitudes and 6% had highly favorable attitudes. It is evident that 70% of the respondents had favorable or highly favorable attitudes. This indicates that the program has been helpful to

agricultural teachers in increasing the global awareness in agricultural education.

Table 17

Distribution of Agriscience Teachers According to Their Attitudes Toward Teacher-Related Aspects of Making Their Curriculum More Internationally Focused

Categories	Number	Percent
Unfavorable	5	3.6
Neutral	37	26.2
Favorable	90	63.8
Highly favorable	9	6.4
Total	141	100.0

The skewness of distribution was -0.513. The negatively skewed distribution contains scores shifted to the right. The value of the skewness indicates the degree to which the scores have shifted away from symmetry. The calculated value of skewness was negative and provided sufficient evidence that most of the agriscience teachers had positive attitudes toward teacher-related aspects of the programs. Means and standard deviations were also calculated for the statements (see Appendix H). Twenty-one statements out of 28 had means above 3.5, indicating favorable or highly favorable attitudes.

Based on the data analysis, the respondents demonstrated agreement with the teacher-related aspects of

making their curriculum more internationally focused. They indicated it is a worthy effort and will help them improve their working relationships with others and so will agree to support the program. They were also interested in having the FFA host students from other countries, serving on an advisory committee, and participating in overseas study tours. They thought that agriscience teachers need in-service training and that successful agriscience teachers should be recognized by the Michigan Department of Education, the local school districts, and the Michigan Association of Agriscience Teachers for their international efforts.

Attitudes of Agriscience Teachers Toward
Educational Linkages of Making Their
Curriculum More Internationally
Focused

To analyze the attitudes of agriscience teachers toward educational linkages of IAEP, 29 statements were included in the instrument. Respondents' mean scores for the statements were calculated. The scores could range from 1.00 to 5.00, 1.00 indicating highly unfavorable attitudes toward educational linkages of making their curriculum more internationally focused and 5.00 indicating highly favorable attitudes. In analyzing respondents' mean scores for these statements, the means were interpreted as follows:

Categories	Scores
Highly unfavorable	< 1.50
Unfavorable	1.50 - 2.49
Neutral	2.50 - 3.49
Favorable	3.50 - 4.49
Highly favorable	> 4.49

Computed scores of agriscience teachers ranged from 2.59 to 5.00, the average being 3.89. Thus, the respondents were distributed among only three categories as shown in Table 18. More than three-fifths (64%) of the respondents had favorable attitudes toward educational linkages of making their curriculum more internationally focused, whereas 16% had highly favorable attitudes and 20% were neutral.

Table 18

Distribution of Agriscience Teachers According to Their Attitudes Toward Educational Linkages of Making Their Curriculum More Internationally Focused

Categories	Number	Percent
Neutral	28	19.9
Favorable	91	64.5
Highly favorable	22	15.6
Total	141	100.0

The skewness of distribution was -0.163, indicating that, in general, the respondents expressed positive attitudes toward the educational linkages of making the

curriculum more internationally focused with other organizations. The means and standard deviations for all the statements were calculated (see Appendix H). Except for the mean of the statement "Local global education/ international understanding initiatives should be funded by the local school district" (3.37), most of the means were above 3.50, indicating positive attitudes toward the educational linkages of the programs. The findings indicated that the agriscience teachers were in agreement that making their curriculum more internationally focused should:

- be a part of the Michigan Department of Education, the Vocational-Technical Education Service, local school districts, and Agricultural and Extension Education Department at MSU;
- maintain linkages with United States Department of Agriculture, Michigan Department of Agriculture, and the Private sector; and
- be integrated into schools, colleges and universities involve the concerned departmental staff in planning, executing and evaluating the programs.

Comparative Attitudes of Agriscience Teachers
Toward Three Selected Aspects of Making Their
Curriculum More Internationally Focused

To compare the attitudes of agriscience teachers toward three selected aspects of making their curriculum more internationally focused, it was first necessary to compute an attitude index for each of the three aspects. The attitude index for a certain aspect was computed by using the following formula:

$$\text{Attitude Index} = \frac{P_{hu}}{1} + \frac{P_u}{2} + \frac{P_n}{3} + \frac{P_f}{4} + \frac{P_{hf}}{5}$$

Where,

P_{hu} = Percentage of respondents having highly unfavorable attitudes

P_u = Percentage of respondents having unfavorable attitudes

P_n = Percentage of respondents having neutral attitudes

P_f = Percentage of respondents having favorable attitudes

P_{hf} = Percentage of respondents having highly favorable attitudes

The possible range of attitude indices could be from 100 to 500, where 100 indicated highly unfavorable attitudes and 500 indicated highly favorable attitudes. However, the computed attitude indices of the three aspects of making their curriculum more internationally focused ranged from 372 to 413. The three aspects are arranged in rank order on the basis of their attitude indices in Table 19.

Table 19

Rank Order of the Three Aspects of Making the Curriculum More Internationally Focused

Attitude aspects	Attitude Index	Rank Order
Student-related	413	1
Educational linkages	396	2
Teacher-related	372	3

As shown in Table 19, respondents expressed the most favorable attitudes toward student-related aspects of making their curriculum more internationally focused, as indicated by an attitude index of 413. The attitude index for educational linkages was 396, indicating that the agriscience teachers' attitudes toward educational linkages were slightly less favorable than those toward student-related aspects. Teacher-related aspects had an attitude index of 372. This indicates that the attitudes of respondents toward this aspect were comparatively less favorable than they were toward student-related aspects and educational linkages of making their curriculum more internationally focused. A comparison of respondents' attitudes toward the three aspects is illustrated in Figure 2.

Overall Attitudes of Agriscience Teachers
Toward Making Their Curriculum More
Internationally Focused

To understand the overall attitudes of agriscience teachers toward the three selected aspects of making their curriculum more internationally focused, an overall attitude score was computed for each respondent. The individual mean scores for 91 statements were calculated by using SPSS/PC+ programs. The possible range of the overall attitude scores could be from 1.00 to 5.00, 1.00 indicating highly unfavorable attitudes toward making their curriculum more

internationally focused and 5.00 indicating highly favorable attitudes..

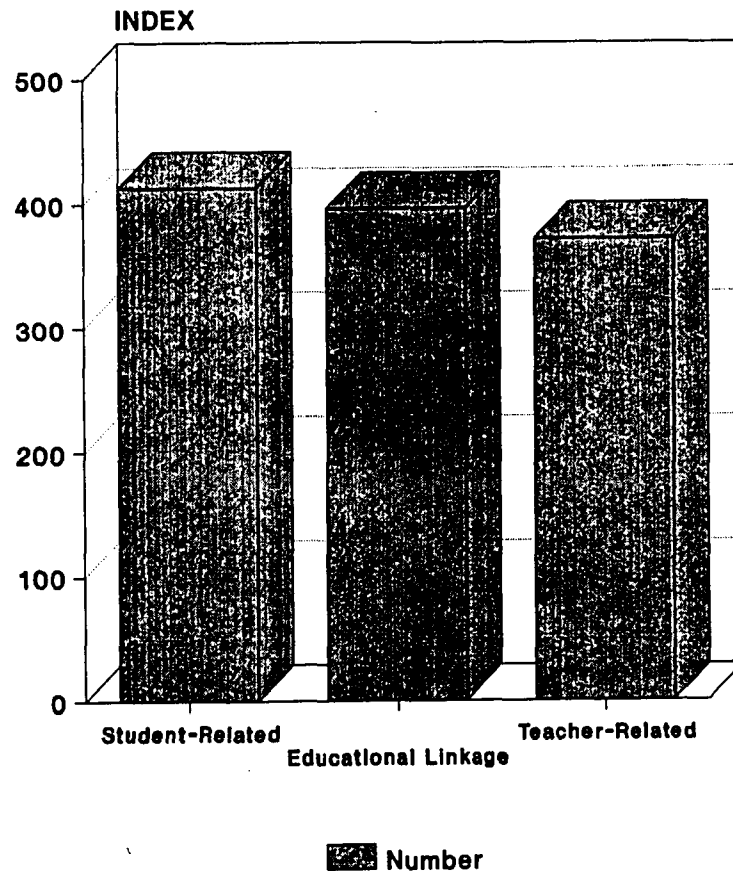


Figure 2: Comparison of agriscience teachers' attitudes toward three aspects of making their curriculum more internationally focused.

The computed overall attitude scores ranged from 2.87 to 4.77. The average score was 3.99. These overall attitude scores were used to determine whether a significant difference existed between and among the groups of agriscience teachers with varying demographic characteristics,

using t -test and ANOVA. On the basis of the overall attitude scores, agriscience teachers were classified into the following three categories:

Categories	Scores
Neutral	< 3.50
Favorable	3.50 - 4.49
Highly favorable	> 4.49

The data presented in Table 20 indicate that more than three-fourths (76%) of the respondents had favorable attitudes toward making their curriculum more internationally focused; in comparison, 16% had neutral attitudes and 8% had highly favorable attitudes. Distribution of agriscience teachers according to their overall attitudes toward making their curriculum more internationally focused is shown visually in Figure 3.

Table 20

Distribution of Agriscience Teachers According to Their Attitudes Toward Making Their Curriculum More Internationally Focused

Categories	Number	Percent
Neutral	23	16.3
Favorable	107	75.9
Highly favorable	11	8.8
Total	141	100.0

The skewness of distribution was -0.365 . The negatively skewed distribution contains scores shifted to the right. The value of the skewness indicates the degree to which scores have shifted away from symmetry. The calculated value of skewness was negative and provided sufficient evidence that most of the agriscience teachers had positive attitudes toward the programs.

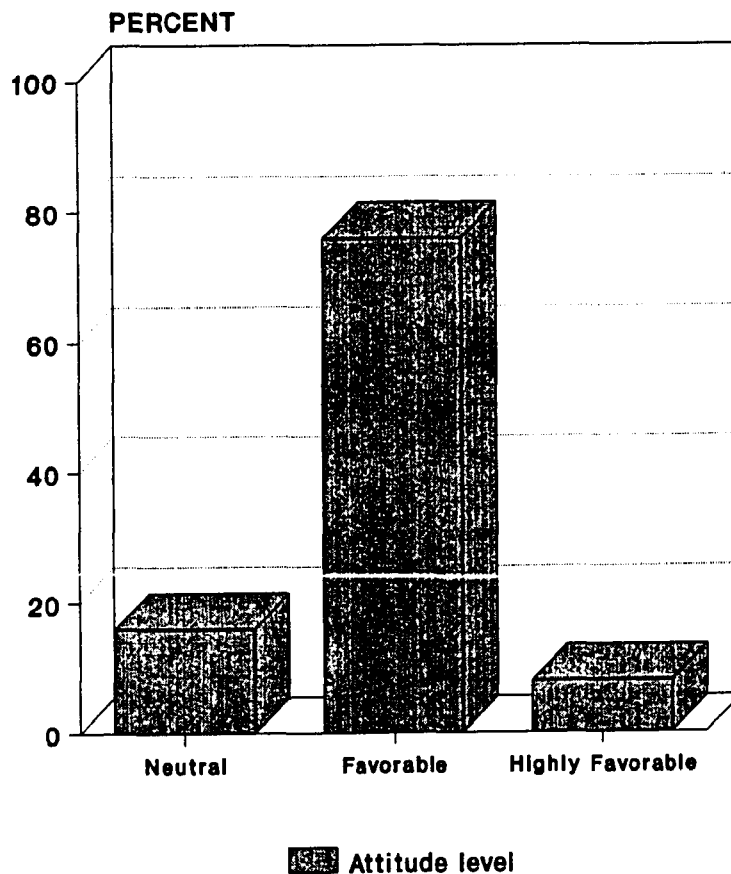


Figure 3: Overall attitudes of agriscience teachers toward making the curriculum more internationally focused.

Incorporating and adopting an internationally focused curriculum in secondary schools, as well as having the full support and cooperation of agriscience teachers, are essential. Cooperation and assistance from agriscience teachers can be expected only when they have favorable and positive attitudes toward making their curriculum more internationally focused. Analysis of data collected from the respondents indicates that, in general, agriscience teachers in Michigan had favorable and positive attitudes toward the programs. Planners can use these findings to internationalize the agricultural education curriculum in secondary schools.

Results of Hypothesis Testing

The statistics used for hypothesis testing were t-test and ANOVA. T-test was employed for comparing the difference between two means, with the assumption that the population variances of the two categories were equal. So the researcher compared the pool variance calculations for the t-test. To compare the means of more than two categories, one-way ANOVA was used. One-way ANOVA is limited to analyzing categorical independent variables. For such analyses, one-way ANOVA is faster than analysis of covariance (ANCOVA) and regression analysis; it offers several useful options that are not available with ANCOVA and regression analysis. Because ANOVA is based on squared

deviations from means, it works best with distributions that are approximately symmetrical. ANOVA results depend on the assumption that the dependent variable has not just symmetrical but normal population distributions, with equal variances, within each category of the independent variable. These assumptions may be hard to check, but at a minimum one can look at the sample distributions of the dependent variables. Bartlett's test for equal variance was used to check the equal variance assumption. If the Bartlett test's p-value is high (such as $p = .75$ or greater), then the equal-variance assumption is plausible. On the other hand, a low p-value (such as $p < .05$) for Bartlett's test indicates that the equal-variance assumption is not plausible and that the ANOVA conclusion may be invalid (Hamilton, 1990, pp. 73-75). Although Bartlett's test provides a formal check on the one-way ANOVA assumption of equal variances, the test itself requires that a second ANOVA assumption, normal distributions, be true. This test is not robust in the presence of nonnormal distributions. If the assumptions are valid, ANOVA can indicate whether there are significant differences among the means. When the answer is yes, the question still remains as to what those differences are. Therefore, the researcher used the Tukey multiple-comparison test to identify the nature of differences among the means. In analyzing the respondents' mean scores on the attitude statements, the means were interpreted as follows:

Category	Scores
Highly unfavorable	< 1.50
Unfavorable	1.50 - 2.49
Neutral	2.50 - 3.49
Favorable	3.50 - 4.49
Highly favorable	> 4.49

Hypothesis 1: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their age.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

Where,

μ_1 = Mean of 25 to 30 years of age

μ_2 = Mean of 31 to 40 years of age

μ_3 = Mean of 41 to 50 years of age

μ_4 = Mean of 51 to 60 years of age

Hypothesis 1 was intended to determine whether agriscience teachers in different age categories would differ in their attitudes toward making their curriculum more internationally focused. A mean score was calculated for respondents in each of the four age categories on the attitude variable. These means were then used in the ANOVA test to determine whether statistically significant differences existed between categories of respondents.

Table 21 shows the ANOVA results for respondents' attitudes by age. No statistically significant difference was found in the means of agriscience teachers who were 25 to 30 years old, 31 to 40 years old, 41 to 50 years old, and 51 to 60 years old with regard to their attitudes toward making their curriculum more internationally focused. Thus, the null hypothesis could not be rejected, and it was

concluded that there was no difference in the attitudes of agriscience teachers based on their ages. Although there was no statistically significant difference in the means, the calculated F -value was fairly large. A look at the mean scores presented in Table 21 reveals that the agriscience teachers 31 to 40 years old had a higher mean score than those 41 to 50 and 51 to 60 years old. The Bartlett test's p -value (.78) indicates that the ANOVA results might not be misleading.

Table 21
ANOVA Results for Agriscience Teachers' Attitudes
Toward Making Their Curriculum More
Internationally Focused, by Age

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
25 to 30 years	3.93	Between Categories	3	1.27	.42	2.47	.06
31 to 40 years	4.01	Within Categories	136	23.62	.17		
41 to 50 years	3.87						
51 to 60 years	3.74	Total	139	24.78			

Test for Homogeneity of Variance: Bartlett-test $F = .36$, $p = .78$.

Hypothesis 2: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their level of education.

That is, $H_0: \mu_1 = \mu_2 = \mu_3$

Where,

μ_1 = Mean of bachelor's degree or less

μ_2 = Mean of master's degree

μ_3 = Mean of more than a master's degree

Hypothesis 2 was concerned with whether agriscience teachers with a bachelor's degree or less, a master's degree, or more than a master's degree would respond differently to the attitude variable pertaining to making their curriculum more internationally focused. The means of the three educational categories of respondents, on the attitude variable, were analyzed using the SPSS/PC+ program. ANOVA was used to determine whether statistically significant differences existed among the three groups.

Table 22 shows the results of that test. No statistically significant difference was found among respondents in the "bachelor's degree or less," "master's degree," or "more than master's degree" categories in their responses to statements concerning their attitudes toward making the curriculum more internationally focused.

On the basis of the preceding findings, the null hypothesis could not be rejected. Hence, it was concluded that there was no statistically significant difference in the attitudes of agriscience teachers based on their level of education. The mean scores of respondents in the "bachelor's degree or less" and "more than a master's degree" categories were almost similar. The mean score of respondents in the "master's degree" category was slightly higher (3.98). Also, the computed F -value was very small.

The Bartlett test's p-value (.46) shows that the equal variance and normalcy of distribution were plausible and that the ANOVA results were valid.

Table 22

ANOVA Results for Agriscience Teachers' Attitudes Toward Making Their Curriculum More Internationally Focused, by Educational Level

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
Bachelor's or less	3.89	Between Categories	2	.29	.15	.83	.44
Master's degree	3.98	Within Categories	137	24.48	.18		
More than master's	3.87	Total	139	24.78			

Test for Homogeneity of Variance: Bartlett-test $F = .78$, $p = .46$.

Hypothesis 3: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their years of teaching experience.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

Where,

μ_1 = Mean of < 6 years of teaching experience

μ_2 = Mean of 6 to 9 years of teaching experience

μ_3 = Mean of 10 to 13 years of teaching experience

μ_4 = Mean of 14 years or more

Hypothesis 3 concerned whether agriscience teachers with various years of teaching experience would respond differently to the attitude statements pertaining to making their curriculum more internationally focused. To conduct

the ANOVA test, the respondents were classified into four teaching experience categories: less than 6 years of teaching experience, 6 to 9 years of teaching experience, 10 to 13 years of teaching experience, and 14 years or more. The mean score for each category was calculated by using SPSS/PC+ programs. This was done to determine whether statistically significant differences existed among agriscience teachers with varying years of teaching experience with regard to their attitudes toward making the curriculum more internationally focused. The ANOVA results are shown in Table 23. The calculated F -value was not statistically significant, meaning no statistically significant difference existed among respondents with varying amounts of teaching experience with regard to how they responded to the attitude statements.

Table 23

ANOVA Results for Agriscience Teachers' Attitudes Toward Making Their Curriculum More Internationally Focused, by Teaching Experience

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
< 6 years	3.86	Between Categories	3	.51	.17	.95	.41
6 to 9 years	4.04	Within Categories	136	24.27	.18		
10 to 13 years	3.98						
14 years or more	3.89	Total	139	24.78			

Test for Homogeneity of Variance: Bartlett-test $F = .81$, $p = .48$.

Based on the above findings, the null hypothesis could not be rejected; it was concluded that there was no statistically significant difference in the attitudes of agriscience teachers based on their years of teaching experience. The highest mean score (4.04) was for respondents in the "6 to 9 years of teaching experience" category, compared to 3.98 for the "10 to 13 years of teaching experience" category, 3.89 for the "14 years or more" category and 3.86 for the "less than 6 years of teaching experience" category. These findings indicate that agriscience teachers with 6 to 9 years of experience had the most favorable attitude toward adopting IAEP for their schools. The Bartlett test's p-value ($p = .48$) indicates that the ANOVA conclusion might be correct.

Hypothesis 4: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their number of memberships in professional societies/organizations.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

Where,

μ_1 = Mean of < 4 memberships

μ_2 = Mean of 4 memberships

μ_3 = Mean of 5 memberships

μ_4 = Mean of more than 5 memberships

Hypothesis 4 was tested to determine whether agriscience teachers who had different numbers of memberships in professional societies/organizations would respond differently to the attitude statements pertaining to making their

curriculum more internationally focused. To conduct the ANOVA test, the respondents were classified into four membership categories: fewer than four memberships, four memberships, five memberships, or more than five memberships. A mean score was computed for respondents in each membership category on the attitude statements regarding IAEP. These means were then used in the ANOVA test to determine whether statistically significant differences existed among the various groups.

Table 24 presents the results of the ANOVA test. A statistically significant difference was found among the means of agriscience teachers who had membership in fewer than four societies, four societies, five societies, and more than five societies, with regard to the attitude variable.

To identify which category or categories differed significantly from the others, a Tukey test was performed on the data. The Tukey test indicated that agriscience teachers who had membership in fewer than four societies and more than five societies differed significantly in their responses to the attitude statements pertaining to IAEP (see Table 25). The greater the number of memberships in professional societies, the higher the mean score.

Table 24

ANOVA Results for Agriscience Teachers' Attitudes Toward Making
Their Curriculum More Internationally Focused, by Member-
ship in Professional Societies/Organizations

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
< 4 societies	3.80	Between Categories	3	1.32	.43	2.54	.05*
4 societies	3.91	Within Categories	131	22.65	.17		
5 societies	3.98						
> 5 societies	4.09	Total	134	23.97			

Test for Homogeneity of Variance: Bartlett-test $F = 1.15$, $p = .33$.

*Significant at $\alpha = .05$.

In conclusion, because a statistically significant difference was found between respondents in the "fewer than four memberships" category and those in the "more than five memberships" category concerning the attitude variable, Null Hypothesis 4 was rejected. It should be noted, however, that in general the respondents had positive attitudes toward making the curriculum more internationally focused. The Bartlett test's p-value (.33) indicates that the ANOVA conclusion might not be misleading pertaining to the responses of agriscience teachers.

Table 25

Tukey Test Results for Level of Membership in Professional
Societies/Organizations and Differences in
Means on the Attitude Variable

Category	Mean	<4 soc.	4 soc.	5 Soc	> 5 Soc.
< 4 societies	3.80				
4 societies	3.91				
5 societies	3.99				
> 5 societies	4.09	*			

* Denotes pair of categories significantly different at $\alpha = .05$.

Hypothesis 5: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their level of cosmopolitanism.

That is, $H_0: \mu_1 = \mu_2 = \mu_3$

Where,

μ_1 = Mean of low cosmopolitanism

μ_2 = Mean of medium cosmopolitanism

μ_3 = Mean of high cosmopolitanism

This hypothesis was intended to determine whether tanism would respond differently to attitude statements tanism would respond differently to attitude statements relative to making their curriculum more internationally focused. On the basis of their questionnaire responses, respondents were grouped into three categories: low cosmopolitanism, medium cosmopolitanism, and high cosmopolitanism. A mean score for each category was calculated by using SPSS/PC+ programs. These means were used in the ANOVA test to determine whether a statistically significant difference existed between categories. As shown

in Table 26, a statistically significant difference was found.

Table 26
ANOVA Results for Agriscience Teachers' Attitudes Toward
Making Their Curriculum More Internationally
Focused, by Cosmopolitanism

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
Low cosmopol.	3.66	Between Categories	2	2.01	1.00	6.05	.003*
Medium cosmopol.	3.95	Within Categories	137	22.77	.17		
High cosmopol.	4.08	Total	139	24.78			

Test for Homogeneity of Variance: Bartlett-test $F = .42$, $p = .65$.

*Significant at $\alpha < .05$.

To identify which category or categories differed significantly from the others, a Tukey test was conducted. Table 27 indicates that respondents in the "low cosmopolitanism" category differed significantly from those in the "medium cosmopolitanism" category; likewise, respondents in the "medium cosmopolitanism" category differed significantly from those in the "high cosmopolitanism" category on the attitude variable. The higher the level of cosmopolitanism, the higher was the attitude score.

The findings presented above led to the rejection of the null hypothesis; it was concluded that there was a

statistically significant difference in the attitudes of agriscience teachers toward making the curriculum more internationally focused, based on their level of cosmopolitanism. As shown in Table 27, the mean scores increased as the level of cosmopolitanism increased. This indicates a positive relationship between the attitudes of agriscience teachers and their level of cosmopolitanism. The Bartlett test's p-value (.65) also indicates that the ANOVA conclusion might be valid.

Table 27

Tukey Test Results for Level of Cosmopolitanism and Differences in Means on the Attitude Variable

Categories	Mean	Low Cosmopol.	Medium Cosmopoli.	High Cosmopoli.
Low Cosmopoli.	3.66			
Medium Cosmopoli.	3.95	*		
High Cosmopoli.	4.08	*		

*Denotes pairs of categories significantly different at $\alpha < .05$.

Hypothesis 6: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their reading of Agricultural Education Magazine.

That is, $H_0: \mu_1 = \mu_2$

Where,

μ_1 = Mean of a no response category

μ_2 = Mean of a yes response category

Hypothesis 6 was tested to determine whether agriscience teachers who read Agricultural Education Magazine and those who did not read it would respond

differently to the attitude statements relative to making their curriculum more internationally focused. An average mean value for the attitude variable was calculated for each respondent category using the SPSS/PC+ computer program. The means were then analyzed using the t-test to determine whether a statistically significant difference existed between the two groups on the attitude variable. The results are shown in Table 28.

Table 28

T-Test Results for Reading Agricultural Education Magazine
and Agriscience Teachers' Attitudes Toward Making
Their Curriculum More Internationally Focused

Categories	Mean	<u>T</u> -Value	df	Two-Tailed Probability
No	3.97			
Yes	3.96	-1.96	138	.05*

* Significant at $\alpha = .05$.

The t-test showed that there was a statistically significant difference on the attitude variable between respondents who read Agricultural Education Magazine and those who did not. The t-test produced a two-tailed probability of .05, which was statistically significant at the established alpha level.

Based on the findings, the null hypothesis was rejected; it was concluded that there was a statistically significant difference in the attitudes of agriscience

teachers toward making their curriculum more internationally focused, based on their reading of Agricultural Education Magazine. The respondents who read Agricultural Education Magazine had higher mean values, indicating more favorable attitudes toward making their curriculum more internationally focused.

Hypothesis 7: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on the number of issues of Agricultural Education Magazine read during 1990-91.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

Where,

μ_1 = Mean of < 2 issue readers

μ_2 = Mean of 2 to 5 issue readers

μ_3 = Mean of 6 to 9 issue readers

μ_4 = Mean of 10 or more issue readers

Hypothesis 7 was intended to determine whether agriscience teachers who read various numbers of issues of Agricultural Education Magazine would respond differently to the attitude statements pertaining to making their curriculum more internationally focused.

In the questionnaire, respondents were asked to indicate how many issues of Agricultural Education Magazine they had read during 1990-91. Based on their responses, the teachers were grouped into four categories: fewer than two issues, two to five issues, six to nine issues, and ten or more issues. A mean score was calculated for the attitude statements for each respondent category, using SPSS/PC+ computer programs. These means were then used in the ANOVA

test to determine whether statistically significant differences existed between categories.

Table 29 contains the results of the ANOVA test. A statistically significant difference was found in the means of respondents in the four categories with regard to the attitude variable.

Table 29

ANOVA Results for Agriscience Teachers' Attitudes Toward Making Their Curriculum More Internationally Focused, by Number of Issue of Agricultural Education Magazine Read During 1990-1991

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
< 2 issues	4.11	Between Categories	3	1.52	.51	2.92	.03*
2 - 5 issues	3.83	Within Categories	105	18.19	.17		
6 - 9 issues	3.92						
10 or more	4.10	Total	108	19.71			

Test for Homogeneity of Variance: Bartlett-test $F = .83$, $p = .47$.

*Significant at $\alpha < .05$.

To identify which category or categories differed significantly from the others, a Tukey test was performed on the data. The Tukey test determined that two-to-five-issue readers and 10-or-more-issue readers differed significantly in their responses to the attitude statements pertaining to making their curriculum more internationally focused (see Table 30). These differences can be seen by comparing the

means of the two groups. The mean scores shown in Table 29 indicate that the greater the number of issues of Agricultural Education Magazine read by agriscience teachers, the higher the mean score, indicating more favorable attitudes toward internationalizing their agricultural education curriculum.

Table 30

Tukey Test Results for Number of Issues of Agricultural Education Magazine Read and Differences in Means on the Attitude Variable

Category	Mean	<2 issues	2-5	6-9	10 or more
< 2 issues	4.11				
2-5 issues	3.83				
6-9 issues	3.92				
10 or more	4.10		*		

*Denotes pair of categories significantly different at $\alpha < .05$.

Based on the findings, the null hypothesis was rejected; it was concluded that there was a statistically significant difference between the two-to-five-issue readers of Agricultural Education Magazine and the 10-or-more-issue readers with regard to the attitude variable. The Bartlett test's p-value (.47) also indicates that the conclusion might not be misleading.

Hypothesis 8: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on whether they received the IAEP instructional materials.

That is, $H_0: \mu_1 = \mu_2$

Where,

μ_1 = Mean of not received category

μ_2 = Mean of received category

Hypothesis 8 was formulated to determine whether agriscience teachers who received the IAEP instructional materials and those who did not receive the materials differed significantly in their responses to attitude statements pertaining to making their curriculum more internationally focused. The means for the "not received" category and the "received" category were calculated using the SPSS/PC+ computer program. These means were then analyzed using a t -test for difference between the means. As shown in Table 31, respondents in the "not received" category had an average mean on the attitude variable of 3.89, whereas those in the "received" category had an average mean of 3.95. The t -test showed that there was no statistically significant difference between the two groups. In conclusion, because there was no statistically significant difference between respondents in the two categories with regard to the attitude variable, the null hypothesis could not be rejected.

Table 31

T-Test Results for Instructional Materials Received
and Agriscience Teachers' Attitudes Toward Making
Curriculum More Internationally Focused

Categories	Means	T-Value	df	Two-Tailed Probability
Not received	3.89			
Received	3.95	.78	138	.43

Hypothesis 9: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their reading of newspapers for agricultural information.

That is, $H_0: \mu_1 = \mu_2$

Where, μ_1 = Mean of no category
 μ_2 = Mean of yes category

This hypothesis was concerned with whether agriscience teachers who read newspapers for agricultural information and those who did not would differ significantly in their responses to the attitude statements. To conduct the t-test, the respondents were classified into two categories, namely, "no"-- those who did not read newspapers for agricultural information--and "yes"-- those who read newspapers for agricultural information. The means for each category were calculated using the t-test for difference between means. Data presented in Table 32 indicate that the respondents who did not read newspapers for agricultural information had a mean of 3.77 on the attitude variable, whereas the respondents who read newspapers for such

difference in means was statistically significant. The findings presented above led to the rejection of the null hypothesis; it was concluded that there was a statistically significant difference in attitudes between agriscience teachers who read newspapers for agricultural information and those who did not. The respondents who read newspapers for agricultural education had a higher mean value, indicating a more favorable attitude toward internationalizing their curriculum.

Table 32

T-Test Results for Reading Newspapers for Agricultural Information and Agriscience Teachers' Attitudes Toward Making Their Curriculum More Internationally Focused

Categories	Means	T-Value	df	Two-Tailed Probability
No	3.77			
Yes	3.96	-2.17	138	.03*

*Significant at $\alpha < .05$.

Hypothesis 10: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their residence.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

Where,

- μ_1 = Mean of rural farm category
- μ_2 = Mean of rural nonfarm category
- μ_3 = Mean of suburban category
- μ_4 = Mean of urban category

Hypothesis 10 was intended to determine whether agriscience teachers who lived in different geographic areas would respond differently to the attitude statements pertaining to making their curriculum more internationally focused. On the questionnaire, respondents were asked to indicate their place of residence: rural farm, rural nonfarm, suburban, or urban. A mean was calculated for respondents in each place-of-residence category on the attitude variable. These means were then used in the ANOVA test to determine whether statistically significant differences existed between respondent categories. The data in Table 33 indicate that there was no statistically significant difference in the means of rural farm, rural nonfarm, suburban, and urban agriscience teachers pertaining to the attitude variable.

Based on the above findings, the null hypothesis could not be rejected. It was concluded that there was no statistically significant difference in the attitudes of agriscience teachers based on their place of residence. Although the differences in means between various categories were not significant, the highest mean value (4.05) was for respondents in the urban category and the lowest (3.84) for those in the rural farm category. This finding indicates that the urban agriscience teachers had more favorable attitudes toward internationalizing their curriculum than did the rural farm teachers. The Bartlett test's p-value

(.66) indicates that the conclusion based on the ANOVA might be accurate.

Table 33

ANOVA Results for Agriscience Teachers' Attitudes
Toward Making Their Curriculum More Inter-
nationally Focused, by Residence

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
Rural farm	3.84	Between Categories	3	.74	.25	1.39	.24
Rural nonfarm	3.95	Within Categories	136	24.04	.18		
Suburban	3.99						
Urban	4.05	Total	139	24.78			

Test for Homogeneity of Variance: Bartlett-test $F = .52$, $p = .66$.

Hypothesis 11: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on how often they changed their residence during the past 10 years.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

Where,

μ_1 = Mean of never changed category

μ_2 = Mean of 1 time category

μ_3 = Mean of 2 to 3 times category

μ_4 = Mean of 4 or more times category

This hypothesis was designed to determine whether agriscience teachers who seldom or never changed residences and those who changed their residences several times over the past 10 years would respond differently to the attitude statements with regard to making their curriculum more internationally focused. To conduct the ANOVA test, the

respondents were grouped into four categories: never changed residence, changed one time, changed two to three times, and changed four or more times. The means for each category were calculated using ANOVA. The ANOVA test results are shown in Table 34. No statistically significant difference was found in the means of agriscience teachers who had never changed their residence, changed one time, changed two to three times and changed four or more time, with regard to the attitude variable.

Table 34

ANOVA Results for Agriscience Teachers' Attitudes
Toward Making Their Curriculum More Internation-
ally Focused, by Changes of Residence
During the Past 10 Years

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
Never changed	3.83	Between Categories	3	.85	.28	1.61	.19
1 time changed	3.95	Within Categories	136	23.93	.17		
2-3 times	3.97						
4 or more times	4.04	Total	139	24.78			

Test for Homogeneity of Variance: Bartlett test $F = 1.30$, $p = .27$.

Based on the above findings, the null hypothesis could not be rejected; it was concluded that there was no significant difference in the attitudes of agriscience teachers toward making their curriculum more internationally

focused, based on their mobility. Although the differences in means for each category were not significant, the F -value was fairly large. The lowest mean (3.85) was for respondents in the "never changed" category and gradually increased to 4.04 for the "changed four or more times" category. The more often respondents changed their residence, the higher the mean value. Thus, teachers who changed their residences most often had the most favorable attitudes toward making their curriculum more internationally focused.

Hypothesis 12: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their participation in national seminars.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

Where,

μ_1 = Mean of fewer than two national seminars

μ_2 = Mean of two to five national seminars

μ_3 = Mean of six to nine national seminars

μ_4 = Mean of 10 to 13 national seminars

μ_5 = Mean of 14 or more national seminars

This hypothesis was tested to determine whether agriscience teachers who had participated in many national seminars would respond differently to the attitude statements pertaining to making their curriculum more internationally focused than would teachers who had attended only a few national seminars. On the questionnaire, the respondents indicated their seminar attendance in one of five categories. A mean was calculated for each category by

using SPSS/PC+ computer programs. These means were then used in the ANOVA test to determine whether statistically significant differences existed between categories. Table 35 shows the results of this test. A statistically significant difference was found between the means of respondents in the "fewer than two seminars," "two to five seminars," "six to nine seminars," "10 to 13 seminars," and "14 or more seminars" categories pertaining to the attitude variable.

Table 35

ANOVA Results for Agriscience Teachers' Attitudes Toward
Making Their Curriculum More Internationally Focused,
by Participation in National Seminars

Analysis of Variance							
Categories	Means	Variance	df	Sum of Squares	Mean Square	F	Signif of F
< 2 seminars	3.78	Between Categories	4	2.60	.65	3.96	.00*
2 to 5 seminars	4.06	Within Categories	135	22.18	.17		
6 to 9 seminars	3.94	Total	139	24.78			
10 to 13 seminars	3.90						
14 or more	4.16						

Test for Homogeneity of Variance: Bartlett-test $F = .55$, $p = .69$.

*Significant at $\alpha < .05$.

Because significant differences were found among the means, a further analysis was conducted to identify which category or categories differed significantly from the

others. The Tukey test indicated that participants in the "fewer than two seminars" category differed significantly from those who in the "two to five seminars" or "14 or more seminars" categories (see Table 36).

Based on the preceding findings, the null hypothesis was rejected, and it was concluded that there was a statistically significant difference in the attitudes of agriscience teachers toward making their curriculum more internationally focused, based on their level of participation in national seminars. Respondents with the highest level of participation in national seminars had the most favorable attitudes toward making their curriculum more internationally focused. The p-value (.69) of the Bartlett test indicates that this conclusion might be valid for the respondents.

Table 36

Tukey Test Results for Participation in National Seminars
and Differences in Means on the Attitude Variable

Categories	Mean	<2 semi.	2-5	6-9	10 -13	14 or more
< 2 seminars	3.78					
2 to 5 seminars	4.06	*				
6 to 9 seminars	3.94					
10 to 13 seminars	3.90					
14 or more	4.16	*				

*Denotes pairs of categories significantly different at $\alpha < .05$.

Hypothesis 13: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their participation in international seminars.

That is, $H_0: \mu_1 = \mu_2$

Where,

μ_1 = Mean of fewer than two international seminars

μ_2 = Mean of two or more international seminars

This hypothesis concerned whether agriscience teachers who had participated in two or more international seminars would respond differently to the attitude statements than those who had participated in fewer than two such seminars. The means for respondents in these two categories were analyzed by using a t -test for differences between means. As shown in Table 37, respondents in the "fewer than two seminars" category had an average mean on the attitude variable of 3.91, whereas those in the "two or more seminars" category had an average mean of 3.92. The t -test showed that there was no statistically significant difference between the two groups on the attitude level.

In conclusion, because no statistically significant difference was found between the two groups with regard to their attitudes toward making the curriculum more internationally focused, the null hypothesis could not be rejected.

Table 37

**T-Test Results for Participation in International
Seminars and Agriscience Teachers' Attitudes
Toward Making Their Curriculum More
Internationally Focused**

Categories	Means	T-Value	df	Two-Tailed Probability
< 2 seminars	3.91			
2 or more seminars	3.92	-.05	138	.96

Hypothesis 14: There is no statistically significant difference in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their primary teaching area.

That is, $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

Where,

μ_1 = Mean of agriscience and natural resources

μ_2 = Mean of horticulture

μ_3 = Mean of agri-mechanics

μ_4 = Mean of agri-production

μ_5 = Mean of biology/science

Hypothesis 14 was intended to determine whether the respondents in various teaching areas would respond differently to the attitude statements pertaining to making their curriculum more internationally focused. An average mean value was calculated for each respondent category on the attitude variable to determine whether statistically significant differences existed between respondents in various teaching-area categories with regard to their attitudes relative to making the curriculum more internationally focused. The ANOVA test results are shown

in Table 38. The calculated F -value was found to be statistically significant.

To identify which category or categories differed significantly from the others, a Tukey test was performed. As shown in Table 39, that agriscience and natural resource teachers differed significantly from agri-production teachers. The agriscience and natural resources teachers had a higher mean value, indicating that they had a more favorable attitude toward making their curriculum more internationally focused than did teachers in the other categories.

Table 38

ANOVA Results for Agriscience Teachers' Attitudes Toward Making Their Curriculum More Internationally Focused, by Primary Teaching Area

Analysis of Variance									
Categories	Means	Variance	df	Sum of Squares	Mean Square	<u>F</u>	Signif of F		
Agriscience & NR	4.00	Between Categories	4	1.67	.42	2.53	.05*		
Horticulture	3.95	Within Categories	135	23.11	.17				
Agri-Mechanics	3.88	Total	139	24.78					
Agri-Production	3.66								
Biology/Science	3.89								

Test for Homogeneity of Variance: Bartlett-test $F = .44$, $p = .77$.

*Significant at $\alpha = .05$.

Table 39

Tukey Test Results for Primary Teaching Area and
Differences in Means on the Attitude Variable

Categories	Mean	ANR	Hort.	AgMech.	AgPro.	Bio/Sc
Agrscience & NR	4.00					
Horticulture	3.95					
Ag-Mechanics	3.88					
Ag-Production	3.66	*				
Biology/Science	3.89					

*Denotes pair of categories significantly different at $\alpha = .05$.

Based on the findings, the null hypothesis was rejected. It was concluded that there was a statistically significant difference in the attitudes of agricultural teachers toward making their curriculum more internationally focused, based on their primary teaching area. The p-value (.77) of the Bartlett test indicates that the ANOVA result might be valid for the respondents.

**Attitudes of Michigan Agriscience Teachers Who Received
The IAEP Instructional Materials and Those Who Did
Not Receive the Materials Toward Making Their
Curriculum More Internationally Focused**

Demographic Characteristics
of the Respondents

To examine the differences in attitudes of agriscience teachers who received the IAEP instructional materials and those who did not toward making their curriculum more internationally focused, it was important to know their

demographic characteristics. Table 40 shows the demographic characteristics of respondents who received the IAEP instructional materials and those who did not.

The ages of teachers who received the IAEP instructional materials and those who did not ranged from 25 to 60 years; the average ages for the two groups were very similar--40 and 39.9 years, respectively. As shown in Table 40, the highest proportion of teachers in both groups were between the ages of 31 and 40. With regard to educational background, 14% of the respondents who received the IAEP instructional materials had more than a master's degree, compared to 10% of those who did not receive the materials.

Thirty-one percent of the agriscience teachers who received the IAEP instructional materials, as compared to 19% of those who did not receive the materials, had 14 years or more of teaching experience. Nineteen percent of the respondents who did not receive the IAEP instructional materials and 11% of those who received the materials had membership in fewer than four professional societies/organizations.

Table 40

Comparison of Demographic Characteristics of Agriscience Teachers Who Received the
IAEP Instructional Materials and Those Who Did Not Receive Them

Demographic Characteristics	Received	Did Not Receive
Age:		
25-30 years old	12(9%)	11(8%)
31-40 years old	29(20%)	27(19%)
41-50 years old	21(15%)	20(14%)
51-60 years old	12(9%)	9(6%)
Education:		
Bachelor's degree or less	31(22%)	29(20%)
Master's degree	23(16%)	24(18%)
More than Master's degree	20(14%)	14(10%)
Teaching Experience:		
Fewer than 6 years	14(10%)	13(9%)
6 - 9 years	7(5%)	10(7%)
10-13 years	10(7%)	17(12%)
14 years or more	43(31%)	27(19%)
Membership in Professional Societies:		
< 4 societies	15(11%)	26(19%)
4 societies	30(21%)	13(10%)
5 societies	15(11%)	13(10%)
> 5 societies	13(10%)	11(8%)
Cosmopolitanism:		
Low cosmopolitanism	12(8%)	11(8%)
Medium cosmopolitanism	48(34%)	51(36%)
High cosmopolitanism	14(10%)	5(4%)
Read Ag. Educ. Magazine:		
No	11(8%)	21(15%)
Yes	63(44%)	46(33%)
Issues of Ag. Educ. Magazine Read:		
< 2 issues	7(6%)	6(5%)
2 - 5 issues	21(19%)	17(16%)
6 - 9 issues	18(17%)	13(12%)
10 or more issues	17(16%)	10(9%)
Read Newspapers for Ag. Information:		
No	16(11%)	15(11%)
Yes	58(41%)	52(37%)
Residence:		
Rural farm	33(23%)	30(21%)
Rural nonfarm	20(14%)	15(11%)
Suburban	15(11%)	15(11%)
Urban	6(4%)	7(5%)

Table 40 (Cont'd)

Demographic Characteristics	Received	Did Not Receive
Mobility:		
Never changed	31(21%)	27(19%)
1 time	21(15%)	19(14%)
2 - 3 times	10(7%)	11(8%)
4 or more times	12(9%)	10(7%)
Participation in National Seminars:		
Fewer than 2	28(20%)	37(26%)
2 to 5 seminars	23(16%)	14(10%)
6 to 9 seminars	6(4%)	8(6%)
10 to 13 seminars	8(6%)	5(4%)
14 or more	9(6%)	3(2%)
Participation in International Seminars:		
< 2 seminars	58(41%)	57(41%)
2 or more	16(11%)	10(7%)
Primary Teaching Areas:		
Agriscience & NR	35(24%)	23(16%)
Horticulture	5(4%)	25(17%)
Agri-Mechanics	8(6%)	10(7%)
Agri-Production	15(11%)	4(3%)
Others(Bio./Sci.)	11(8%)	5(4%)

Ten percent of the respondents who received the IAEP instructional materials compared to 4% who did not receive the materials had high cosmopolitanism. Forty-four percent of the respondents who received the IAEP instructional materials read Agricultural Education Magazine, whereas 33% of those who did not receive the materials read this publication.

Respondents in both groups were found to be comparable with regard to reading newspapers, residence, mobility, and participation in national and international seminars. The largest proportion (17%) of horticulture teachers did not

receive the IAEP instructional materials; only 4% of them received these materials.

Attitudes of Agriscience Teachers

Items concerning three different aspects of how to make the curriculum more internationally focused were included in the questionnaire to determine any differences in attitudes between agriscience teachers who received the IAEP instructional materials and those who did not. The three topics were student-related aspects, teacher-related aspects, and educational linkages of making the curriculum more internationally focused. In this section, each aspect is discussed in turn with regard to attitudes of agriscience teachers who received the IAEP instructional materials and those who did not. The null hypothesis pertaining to each aspects is restated, followed by the results of the data analysis for that hypothesis.

Student-related aspects. The questionnaire contained 34 statements concerning student-related aspects of making their curriculum more internationally focused. Means and standard deviations were calculated for each statement by using the SPSS/PC+ programs; they are presented in Table 41. On all but one statement, "Through IAEP, students will have an opportunity to interact with people in other parts of the world" (mean = 3.29), the mean ratings by agriscience teachers who received the IAEP instructional materials

ranged from 3.70 to 4.54, indicating favorable attitudes toward making their curriculum more internationally focused. The mean ratings by agriscience teachers who did not receive the materials ranged from 3.59 to 4.56, also indicating favorable attitudes toward making their curriculum more internationalized.

Table 41

Means, Standard Deviations and t-Values on Student-Related Attitudinal Statements for Agriscience Teachers Who Received Instructional Materials for IAEP and Those Who Did Not Receive Such Materials

Statements	Received Materials		Did Not Receive		T-Value
	Mean	SD	Mean	SD	
1. For secondary students to understand global agriculture, they should first have a basic understanding of geography as related to their state, such as:					
a. Location of where they reside on a county map.	4.48	.72	4.48	.74	.05
b. Location of county on a state map.	4.54	.60	4.56	.63	.26
c. Identification of major cities in the state where large quantities of agricultural products are consumed.	4.46	.57	4.39	.69	.67
d. Location of major ports for shipping agricultural products.	4.42	.61	4.21	.70	1.88
2. To help students understand agriculture from a global perspective, they should have a basic understanding of the United States and world geography, such as:					
a. Major regions in the United States.	4.47	.64	4.49	.60	.20
b. Location of states in major regions in the United States.	4.35	.53	4.43	.60	.85
c. The seven continents in the world.	4.33	.62	4.17	.79	.05
d. Location of countries in the world.	4.34	.61	4.22	.69	.10
e. Major oceans used in shipping agricultural products.	4.25	.64	4.17	.79	.64
f. Countries that are the most densely populated.	4.33	.62	4.28	.64	.28
3. International agricultural education programs will increase students' awareness of the need for the United States to work closely with countries around the world for:					
a. Economic benefits.	4.17	.66	4.19	.72	.16
b. Political benefits.	3.92	.75	3.84	.77	.65
c. Humanitarian benefits.	4.10	.75	4.08	.66	.15
4. Students are more likely to understand global agriculture if they are given instruction about:					
a. Major agricultural products that are produced in their county.	4.22	.78	4.22	.69	.05
b. What happens to local products once they leave the community.	4.36	.58	4.26	.68	.90
c. Major agricultural products that are produced in Michigan.	4.37	.63	4.28	.62	.89
d. Major export markets for Michigan agricultural products.	4.24	.54	4.25	.68	.84
e. States in the U.S. that are competing with Michigan's major agricultural products.	4.21	.72	4.17	.71	.30
f. Other countries that are competing with Michigan's major agricultural products.	4.34	.65	4.29	.62	.49
g. Countries that need and are capable of purchasing Michigan's major agricultural products.	4.33	.62	4.30	.67	.32
5. IAEP will increase awareness of global agriculture and the effects on American agriculture.	4.07	.70	4.07	.74	.06

Table 41 (Cont'd)

Statements	Received Materials		Did Not Receive		T-Value
	Mean	SD	Mean	SD	
6. With proper instruction and materials, students will be able to understand basic international agricultural concepts.	4.17	.55	4.04	.72	1.21
7. Considering the countries that are projected to be the best markets for Michigan's major products, students should be instructed on those countries':					
a. Culture.	3.72	.78	3.70	.93	.19
b. Infrastructure (educational systems, transportation system, major industries, etc.).	3.70	.71	3.59	.93	.76
c. Standard of living.	3.97	.70	3.79	.86	.05
d. Natural resources.	4.00	.61	3.98	.75	.13
8. IAEP will provide students with a global perspective with respect to career opportunities.	3.82	.62	3.79	.66	.31
9. Students should be encouraged to participate in the various national FFA international programs (World Agriscience Studies, Work Experience Abroad, Travel Seminars, etc.).	4.00	.64	3.75	.91	1.93*
10. Basic IAEP concepts are not too complex for the average agriscience students.	3.86	.78	3.59	.90	1.88
11. IAEP will provide students with an appreciation of the interdependency of nations around the world.	3.84	.72	3.70	.75	1.09
12. IAEP will prepare students for future changes in global agriculture.	3.72	.80	3.79	.68	.59
13. Through IAEP, students will have an opportunity to interact with people in other parts of the world.	3.29	.90	3.59	.71	2.17*
14. IAEP will help students understand global agricultural marketing systems.	3.89	.58	3.85	.82	.34
15. IAEP will help students function better as citizens in a global society.	3.86	.64	3.81	.80	.48

Means were calculated on the basis of a five point Likert-scale

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

* Significant at $\alpha \leq .05$.

Hypothesis 15: There is no statistically significant difference in attitudes toward student-related aspects of making the curriculum more internationally focused between the Michigan agriscience teachers who receive the IAEP instructional materials and those who did not received the materials.

Null hypothesis 15 was tested to determine whether statistically significant differences existed between the attitudes of agriscience teachers who received the IAEP instructional materials and those who did not receive the

materials, regarding student-related aspects of making their curriculum more internationally focused.

T-test was used in this analysis. The results of that test are shown in Table 41. Statistically significant differences were found between agriscience teachers who received the IAEP instructional materials and those who did not receive the materials in their responses to two statements relative to the student-related aspect of making their curriculum more internationally focused. The two statements were, "Students should be encouraged to participate in the various national FFA international programs (World Agriscience Studies, Work Experience Abroad, Travel Seminars, etc.)" (Item 9) and "Through IAEP, students will have an opportunity to interact with people in other parts of the world" (Item 13).

Teacher-related aspects. The questionnaire contained 28 statements concerning teacher-related aspects of making the curriculum more internationally focused. They are reported in Table 42. The mean ratings by agriscience teachers who received the IAEP instructional materials for five of the teacher-related statements ranged from 3.09 to 3.46, indicating neutral attitudes. The mean ratings of the other 23 statements ranged from 3.50 to 4.32, indicating favorable attitudes toward these teacher-related aspects of making the curriculum more international.

Table 42

Means, Standard Deviations, and t-Values on Teacher-Related Attitudinal Statements for Agriscience Teachers Who Received Instructional Materials for IAEF and Those Who Did Not Receive Such Materials

Statements	Received Materials		Did Not Receive		T-Value
	Mean	SD	Mean	SD	
1. I see IAEF efforts as benefiting me personally.	3.70	.99	3.59	.79	.69
2. Internationalizing my agriscience program will help in:					
a. Strengthening the program.	3.50	.94	3.53	.78	.25
b. Improving my working relationship with other school personnel.	3.33	.89	3.25	.76	.60
c. Creating a better relationship with the agricultural community.	3.46	.83	3.47	.68	.14
d. Recruiting additional students.	3.09	.93	3.14	.92	.35
3. IAEF should be given a high priority because US agriculture will benefit from it.	3.58	.92	3.44	.87	.88
4. IAEF addresses the issue of a growing international interdependence in the area of agriculture.	3.87	.72	3.81	.72	.60
5. Ag teachers need in-service training to internationalize their programs.	4.02	.97	4.10	.90	.49
6. I would be interested in attending an in-service training session on how to internationalize my program.	3.98	1.01	3.76	1.08	.74
7. Agriscience teachers who have received in-service training on how to internationalize agriscience programs are likely to be more successful in this integration effort than teachers who have not had such training.	4.31	.57	4.05	.90	1.99*
8. For teachers to understand global agriculture, they should be given selected reading materials that they can easily use in the classroom.	4.32	.70	4.00	.67	2.79*
9. Internationalizing my program is worth the effort.	3.87	.93	3.73	.76	.99
10. I am very supportive of the initiative to internationalize agriscience programs in Michigan.	3.94	.85	3.75	.76	1.45
11. MSU's Department of Agricultural and Extension Education should provide resources to support the infusion of an international dimension into agriscience programs.	4.00	.87	3.78	.96	1.44
12. I would encourage my students to participate in national FFA's international programs.	4.02	.75	3.61	.99	2.79*
13. I would be interested in having my FFA chapter serve as a host chapter for a student from another country for:					
a. 3 weeks	3.71	.81	3.33	1.03	2.38*
b. 6 weeks	3.18	.83	3.20	1.00	.13
14. I wish to increase my understanding of global agriculture by participating in a planned overseas study tour.	3.63	1.11	3.32	1.10	1.88
15. Agriscience teachers who have been successful in internationalizing their programs should be recognized by					
a. The Michigan Department of Education.	3.90	.99	3.85	1.00	.32
b. The local school district.	3.82	.98	3.88	.96	.34
c. The Michigan Association of Agriscience Educators.	4.02	.97	3.94	.90	.55
16. A well-implemented IAEF will improve the image of the agriscience teacher.	3.78	.66	3.79	.82	1.04

Table 42 (Cont'd)

Statements	Received Materials		Did Not Receive		T-Value
	Mean	SD	Mean	SD	
17.If statewide IAEP efforts are to be successful, agriscience teachers should be directly involved in:					
a. Planning statewide programs.	4.00	.66	3.89	.81	1.66
b. Implementing statewide programs.	3.97	.59	3.76	.83	1.74
c. Evaluating statewide programs.	3.97	.61	3.79	.80	1.51
18.I would be willing to serve on an advisory committee for the purpose of strengthening current IAEP thrusts.	3.17	1.11	3.02	1.01	.81
19.Internationalizing agriscience programs has not been pushed too much in the state.	3.52	.85	3.48	.89	.50
20.As agriscience teachers, we should view the world as our laboratory to prepare students for working and living in a global society.	4.00	.68	4.00	.88	.00

Means were calculated on the basis of a five point Likert-scale

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

* Significant at $\alpha \leq .05$.

The mean ratings by agriscience teachers who did not receive the IAEP instructional materials on nine teacher-related statements ranged from 3.02 to 3.47, indicating neutral attitudes. The mean ratings for the other 19 statements ranged from 3.50 to 4.10, indicating favorable attitudes toward these teacher-related aspects of internationalizing their curriculum. Thus, a majority of both the agriscience teachers who received the IAEP instructional materials and those who did not receive the materials expressed favorable attitudes toward teacher-related aspects of making their curriculum more internationally focused.

Hypothesis 16: There is no statistically significant difference in attitudes toward teacher-related aspects of making the curriculum more internationally focused between the Michigan agriscience teachers who received the IAEP instructional materials and those who did not receive the materials.

Null hypothesis 16 was tested to determine whether statistically significant differences existed between the attitudes of agriscience teachers who received the IAEP instructional materials and those who did not receive the materials, regarding teacher-related aspects of making their curriculum more internationally focused.

A t-test was used in this analysis. The results of that test are presented in Table 42. Statistically significant differences were found between agriscience teachers who received the IAEP instructional materials and those who did not receive the materials in their responses to four statements relative to the teacher-related aspects of making their curriculum more internationally focused. The four statements were:

1. "Agriscience teachers who have received in-service training on how to internationalize agriscience programs are likely to be more successful in this integration effort than teachers who have not had such training" (Item 7).

2. "For teachers to understand global agriculture, they should be given selected reading materials that they can easily use in the classroom" (Item 8).

3. "I would encourage my students to participate in national FFA's international programs" (Item 12).

4. "I would be interested in having my FFA chapter serve as a host chapter for a student from another country for 3 weeks" (Item 13).

On all these four statements, agriscience teachers who received the IAEP instructional materials gave significantly higher mean ratings than agriscience teachers who did not receive the materials. Therefore, the IAEP instructional materials seem to have influenced favorably the attitudes of agriscience teachers who received the materials toward making their curriculum more internationally focused.

Educational Linkages. The questionnaire contained 29 statements concerning educational linkages of making the curriculum more internationally focused. Means and standard deviations were calculated for each statement; they are presented in Table 43. All of the mean ratings by agriscience teachers who received the IAEP instructional materials and those who did not receive the materials ranged from 3.62 to 4.22 except the mean rating for the statement, "Local global educational/international understanding initiatives should be funded by the local school districts" (mean = 3.40). Thus, the agriscience teachers who received the IAEP instructional materials and those who did not receive the materials showed favorable attitudes toward all but one of the statements relative to educational linkages of internationalizing their curriculum.

Hypothesis 17: There is no statistically significant difference in attitudes toward educational linkages of making the curriculum more internationally focused between the Michigan agriscience teachers who received the IAEP instructional materials and those who did not received the materials.

Null hypothesis 17 was tested to determine whether statistically significant differences existed between the attitudes of agriscience teachers who received the IAEP instructional materials and those who did not receive the materials, regarding educational linkages of making their curriculum more internationally focused.

A t-test was used in this analysis. The results of that test are presented in Table 43. No statistically significant differences were found between agriscience teachers who received the IAEP instructional materials and those who did not receive the materials in their responses to the statements relative to educational linkages of making their curriculum more internationally focused. Both groups expressed similar attitudes toward this aspect of internationalizing their curriculum.

In summary, statistically significant differences in attitudes were found between agriscience teachers who received the IAEP instructional material and those who did not receive the materials toward the following attitudinal statements:

1. Students' participation in national FFA international programs.

Table 43

Means, Standard Deviations, and t-Values on Attitudinal Statements Relative to Educational Linkages for Agriscience Teachers Who Received Instructional Materials for IAEP and those Who Did Not Receive Materials

Statements	Received Materials		Did Not Receive		T-Value
	Mean	SD	Mean	SD	
1. Global education/international understanding should be a part of the philosophy of:					
a. The Michigan Department of Education.	3.87	.70	3.83	.82	1.06
b. The Vocational-Technical Education Service.	3.72	.78	3.74	.76	.13
c. The local school districts.	3.63	.86	3.71	.83	.57
d. The Department of Agricultural and Extension Education at MSU.	3.91	.75	3.89	.85	.17
2. Global education/international understanding should be a part of the goal statements of:					
a. The Michigan Department of Education.	3.94	.65	3.79	.99	1.10
b. The Vocational-Technical Education Service.	3.68	.75	3.77	.89	.30
c. The local school district.	3.64	.78	3.68	.80	.28
d. The Department of Agricultural and Extension Education at MSU.	3.85	.78	3.88	.91	.20
3. Local global education/international understanding initiatives should be funded by:					
a. The Michigan Department of Education.	3.93	.88	3.97	.93	.25
b. The Vocational-Technical Education Service.	3.64	.86	3.62	1.07	.13
c. The local school districts.	3.40	.93	3.32	1.03	.46
4. IAEP should be linked directly to the international efforts of:					
a. The United States Department of Agriculture.	4.17	.60	4.19	.72	.16
b. The Michigan Department of Agriculture.	4.21	.55	4.17	.69	.35
c. The private sector.	4.05	.70	3.92	.80	.95
5. International concepts should be integrated into every facet of the school curriculum, including:					
a. Grades K-5	3.64	.85	3.62	1.02	.14
b. Grades 6-8	3.86	.70	3.94	.91	.55
c. Grades 9-12	4.25	.70	4.08	.93	1.21
6. International concept should be included in the undergraduate curriculum of college students.	4.22	.60	4.22	.64	.06
7. International concepts should be included in university graduate programs.	4.09	.70	4.16	.68	.59
8. Local agriscience internationalizing initiatives are more likely to be successful if they involve:					
a. Michigan Department of Education.	3.82	.94	3.82	.83	.02
b. MSU Department of Agricultural and Extension faculty.	4.06	.68	4.01	.76	.43
c. School administrators.	3.83	.75	3.80	.87	.23
d. Vocational-Technical Education Service personnel.	3.87	.77	3.91	.75	.25
e. Local teachers.	4.10	.65	4.00	.81	.87
f. Local counselors.	3.85	.67	3.92	.78	.60
g. Advisory committee members.	3.95	.72	4.05	.73	.81
h. Individuals from the local agricultural community.	4.09	.64	3.91	.83	1.48
i. FFA alumni.	3.91	.65	3.91	.75	.07
j. Parents.	3.83	.68	3.83	.97	.01

Means were calculated on the basis of a five point Likert-scale

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

2. Students' opportunity to interact with the people of other countries.

3. The necessity of in-service training for agriscience teachers.

4. Selected reading materials for internationalizing the curriculum.

5. Encouragement of students' participation in national FFA international programs.

6. Interest in having the FFA chapter serve as host chapter for students from other countries for 3 weeks.

In all cases, teachers who received the IAEP instructional materials gave these statements higher ratings than those who did not receive the materials. No statistically significant differences were found between the two groups on the other attitudinal statements.

A summary of the study findings, conclusions drawn from the findings, recommendations for further study, and implications are presented in Chapter v.

CHAPTER V

SUMMARY, CONCLUSIONS, and RECOMMENDATIONS

Summary

In 1989, Michigan and California were selected by the National Council for Agricultural Education to provide national leadership for internationalizing agricultural education programs in the United States. Before this selection, project staff members in Michigan had spent a year developing and field testing an instructional manual entitled "Internationalizing Agricultural Education Programs" (IAEP). They believed that the agricultural education profession had a responsibility to add a global perspective in the curriculum regarding world agriculture, if students were to effectively apply the principles of agriculture and human resource development in a complex world community.

Project staff along with pilot-site teachers offered several teacher workshops to help teachers use the IAEP instructional manual. In 1990, after a large percentage of Michigan agriscience teachers had used the instructional manual for about one year, faculty at Michigan State University expressed an interest in knowing whether the

teachers who received the IAEP instructional manual had different attitudes toward making their curriculum more internationally focused than those who had not received the IAEP materials. This research was undertaken to address that concern.

In the present study, the researcher's purposes were to analyze the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused and to examine the differences in attitudes between teachers who had received IAEP instructional materials and those who had not. The specific objectives were:

1. To determine the attitudes of Michigan agriscience teachers toward student-related aspects, teacher-related aspects, and educational linkages of making their curriculum more internationally focused, and to describe the differences in attitudes toward these aspects between teachers who had received IAEP instructional materials those who had not.

- 2 To determine the differences in attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on selected demographic characteristics of those educators, and to provide this information to program planners to help in developing and implementing future international education curriculum thrusts in Michigan.

The design of this study was descriptive in nature. Data were collected by means of a questionnaire that was sent to all secondary school agriscience teachers in Michigan in the 1990-91 academic year ($N = 160$). The overall response rate was 88% ($N = 141$).

The instrument used to collect data for the study consisted of two sections. The first section contained statements concerning various aspects of making the secondary school curriculum more internationally focused. Respondents were asked to indicate their attitudes toward each statement using a 5-point Likert-type attitudinal scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The second section of the instrument contained items pertaining to demographic characteristics of the respondents.

Two main hypotheses were formulated for this study:

Hypothesis I: There is no statistically significant difference in attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their age, education, years of teaching experience, membership in professional societies/organizations, cosmopolitanism, reading Agricultural Education Magazine, receiving IAEF instructional materials, reading newspapers for agricultural information, residence, mobility, participation in national and international seminars/conferences, and primary teaching area.

Hypothesis II: There is no statistically significant difference in attitudes toward student-related aspects, teacher-related aspects, and educational linkages of making their curriculum more internationally focused between Michigan agriscience teachers who received the IAEF instructional materials and those who did not receive the materials.

For testing purposes, Hypotheses I and II were broken down into 17 null hypotheses. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize the data pertaining to the demographic characteristics of the respondents. For attitudinal statements, respondents' individual mean ratings for each statement were calculated. These means were used in determining whether there were significant differences in the attitudes of Michigan agriscience teachers toward making their curriculum more internationally focused, based on their personal characteristics and whether or not they had received the IAEP instructional materials. T-tests and ANOVAs were used in these analyses. When significant differences between groups were found, the Tukey multiple-range test was employed to isolate the source of significant differences. Throughout the study, a .05 probability level was used as the criterion for rejecting the null hypotheses.

Major Findings

Demographic Characteristics of Respondents

More than one-half (56%) of the respondents were 40 years old or younger. People in these categories are generally receptive to new ideas and have favorable attitudes toward innovation. Forty-one of them had a bachelor's degree or less. More than two-thirds (69%) of the respondents had 10 years or more of teaching experience.

Sixty-two percent of them primarily taught agriscience and natural resources (41%) and horticulture (21%). Most of the participants belonged to professional societies, through which they can receive information about new ideas pertaining to internationalizing the agricultural education curriculum. Almost one-third (32%) of the respondents belonged to four societies/organizations, and 31% belonged to fewer than four.

The largest proportion (70%) of respondents had medium cosmopolitanism. Seventy percent of the respondents lived in rural areas--45% in rural farm residences and 25% in rural nonfarm residences. The majority of respondents were not geographically mobile. Almost two-fifths (41%) of them had never changed their residences during the past 10 years.

The majority (77%) of teachers in this study read Agricultural Education Magazine. About 35% of them read two to five issues during 190-91, and another 28% read six to nine issues that year. Almost half (48%) of the respondents had not received any IAEP instructional materials on making their curriculum more internationally focused. Only 52% of them had received such materials. They commented that they needed more materials to effectively teach international agriculture to their students. In fact, it must be noted that the success of any program depends upon the availability of information and related materials to the clientele.

Significant Differences in Attitudes,
Based on Demographic Characteristics

A statistically significant difference was found between agriscience teachers who belonged to fewer than four professional societies and those who belonged to more than five societies, in how they responded to the attitude statements. The higher the number of memberships they had in professional societies, the more favorable were respondents' attitudes toward making their curriculum more internationally focused.

A statistically significant difference was also found among teachers with varying degrees of cosmopolitanism in how they responded to the attitude statements. The higher the teachers' degree of cosmopolitanism, the more favorable were their attitudes.

Respondents who read Agricultural Education Magazine differed significantly on the attitude variable from those who did not read this professional publication. Respondents who read Agricultural Education Magazine had a significantly higher mean value, indicating a more favorable attitude toward making their curriculum more internationally focused. Teachers who read two to five issues of the magazine and those who read ten or more issues differed significantly in their attitudes toward making their curriculum more internationally focused. The greater the number of issues respondents read, the more favorable were their attitudes.

A statistically significant difference in attitudes was found between agriscience teachers who read newspapers for agricultural information and those who did not. The respondents who read newspapers had significantly more favorable attitudes toward making the curriculum more internationally focused. A statistically significant difference in attitudes was also found among teachers who had participated in varying numbers of national seminars. Those who had participated in more seminars had significantly more favorable attitudes toward making their curriculum more internationally focused.

Respondents who taught agriscience and natural resources differed significantly in their attitudes from those who taught agri-production. The former group had significantly more favorable attitudes toward making their curriculum more internationally focused than did teachers in the other categories.

Significant Differences in Attitudes
Between Teachers Who Received and
Did Not Receive the IAEP
Instructional Materials

Few statistically significant differences were found between agriscience teachers who had received the IAEP instructional materials and those who had not received the materials, concerning their responses to attitude statements. Significant differences were found between the

two groups in their responses to statements concerning their attitudes toward:

1. Students' participation in national FFA international programs.
2. Students' opportunity to interact with people from other countries.
3. The necessity of in-service training to help teachers internationalize their programs.
4. The provision of selected reading materials to help teachers internationalize the curriculum.
5. The encouragement of students' participation in national FFA international programs.
6. Interest in having their FFA chapter serve as host chapter for students from other countries for 3 weeks.

Teachers who had received the IAEP instructional materials had significantly more favorable attitudes toward these items than did teachers who had not received the materials.

Attitudes Toward Student-Related
Aspects of Making the Curriculum
More Internationally Focused

The majority (92%) of agriscience teachers had favorable and highly favorable attitudes toward student-related aspects of making their curriculum more internationally focused. That is, they agreed that the students should understand (a) the basic geography of the

state, nation, and world; (b) global agriculture and its effect on U.S. agriculture; (c) future changes in global agriculture; (d) interactions with people from other countries; (e) international marketing systems; (f) the culture, infrastructure, standard of living, economy, politics, and natural resources of other countries; (g) global perspectives with respect to career opportunities; and (h) international interdependency.

Attitudes Toward Teacher-Related
Aspects of Making the Curriculum
More Internationally Focused

The largest proportion (70%) of Michigan agriscience teachers had favorable and highly favorable attitudes toward teacher-related aspects of making their curriculum more internationally focused. This indicates that the IAEP program had been helpful to agriscience teachers in increasing global awareness in agricultural education. They indicated it was a worthy effort, which helped them improve working relationships with others, and they agreed to continue supporting the program. Respondents also were interested in having their FFA chapters host students from other countries, in serving on an advisory committee, and in participating in an overseas study tour. They thought agriscience teachers needed in-service training and that successful agriscience teachers should be recognized by the Michigan Department of Education, the local school district,

and the Michigan Association of Agriscience Teachers for their international efforts.

Attitudes Toward Educational Linkages
of Making the Curriculum More
Internationally Focused

Eighty percent of the respondents had favorable and highly favorable attitudes toward educational linkages of making their curriculum more internationally focused. They indicated that internationalizing the agricultural education curriculum should be a priority of the Michigan Department of Education, the Vocational-Technical Education Service, local school districts, and the Agricultural and Extension Education Department at MSU. They believed that IAEP programs should maintain linkages with the international efforts of the United States Department of Agriculture, Michigan Department of Agriculture, and the private sector. They also believed that these programs should be integrated into the curriculum of schools, colleges, and universities and that the concerned departmental staff should be involved in planning, executing, and evaluating these programs.

Overall, Michigan agriscience teachers (84%) had favorable attitudes toward the international agricultural program thrusts. Planners can use these findings to expand the efforts to internationalize agricultural education in secondary schools.

Conclusions

Study participants agreed that internationalizing the agricultural education curriculum was important. Differences that were found were in the level of agreement, and not in whether respondents agreed or disagreed with the concepts. Based on the research findings, the following conclusions were drawn:

1. Overall, agriscience teachers demonstrated favorable attitudes toward making their curriculum more internationally focused. Thus, program planners involved in making secondary schools' curriculum more internationally focused can use agriscience teachers in the endeavor.

2. Younger respondents expressed more favorable attitudes than did older teachers. Hence, younger agriscience teachers might be given leadership roles in internationalizing the curriculum in the local schools.

3. The respondents' formal education did not seem to influence their attitudes toward internationalizing the agricultural education curriculum. Thus, level of formal education might not be a criterion for involving teachers in efforts to make the curriculum more internationally focused.

4. Half of the respondents had more than 14 years of teaching experience, and these teachers had favorable attitudes toward making the agricultural education curriculum more internationally focused. Hence, efforts to make the curriculum more internationally focused will be

facilitated if program planners use agriscience teachers with more teaching experience in this endeavor.

5. Respondents with different numbers of memberships in professional societies explicitly differed in their attitudes toward making the agricultural education curriculum more internationally focused. Membership in professional societies helps agriscience teachers know more about global social, cultural, political, and economic conditions, and such knowledge can help these educators internationalize their agricultural education curriculum in secondary schools. Therefore, program planners might identify agriscience teachers with more memberships in professional societies to provide leadership in making the agricultural education curriculum more internationally focused at the secondary level.

6. Agriscience teachers with high cosmopolitanism had significantly more favorable attitudes toward incorporating international concepts in their local agricultural education curriculums than did teachers with lower levels of cosmopolitanism. Cosmopolitanism refers to the degree to which an individual's orientation is external to his or her own social system. Persons with a cosmopolitan orientation come into contact with people, ideas, and things. Such contacts broaden their outlooks and increase their receptiveness to new ideas. Thus, if planners employ agriscience teachers with high cosmopolitanism during the

initial stages of internationalizing the curriculum, this could accelerate the goal of making the agricultural education curriculum more internationally focused at the local level.

7. Reading Agricultural Education Magazine strongly influenced the attitudes of agriscience teachers relative to internationalizing their local agricultural education curriculums. This magazine is a vehicle for communicating information on global agriculture and current issues in the profession. The more the teachers read this magazine, the more they will learn about how to internationalize their curriculum. Thus, additional efforts should be made to encourage more teachers to read the magazine published for their profession.

8. Residents who had changed their residence several times expressed more favorable attitudes toward internationalizing their curriculum. However, the majority of respondents were not geographically mobile, and immobile people are usually less flexible and less innovative. Mobility helps people become familiar with different social and cultural traits, economics, and technology, allowing them to be more receptive toward innovative ideas. Because most of the agriscience teachers in this study were not mobile, they might not be as interested in internationalizing their curriculum as they should be.

9. The more national seminars in which respondents participated, the more favorable were their attitudes toward internationalizing the agricultural education curriculum. Because a larger majority (72%) of the teachers in this study had a very low level of participation in national seminars and conferences, they might not be fully aware of the various aspects of making the curriculum more internationally focused. Thus, arrangements should be made to organize seminars/conferences to help agriscience teachers understand global agriculture and how to make their curriculums more internationally focused.

10. The agriscience and natural resources and horticulture teachers expressed more favorable attitudes toward internationalizing the curriculum than did teachers of other subjects. Therefore, educators who teach primarily agriscience and natural resources and horticulture might be given responsibility for motivating other concerned individuals to make the secondary school agricultural education curriculum more internationally focused.

11. Agriscience teachers who had received the IAEP materials and teachers who had not received the materials differed significantly on only 9 of the 91 attitude statements. Thus, there is not sufficient evidence that these materials help improve agriscience teachers' attitudes toward making their curriculum more internationally focused.

12. The favorable attitudes demonstrated by the respondents lead to the conclusion that agriscience teachers in Michigan are willing to internationalize their local agriscience curriculum. Thus, there is potential for expanding internationalization efforts in the state.

Recommendations

The findings from this study indicated that agriscience teachers thought that internationalizing the agricultural education curriculum is an important part of the total agricultural education program. The following recommendations, based on the findings, are worthy of consideration by those responsible for planning, supervising, and administering the internationalization of the agricultural education curriculum.

1. Agricultural educators at all levels should emphasize the importance to the total agricultural education program of making the curriculum more internationally focused.

2. The Michigan Department of Education and the Agricultural and Extension Education Department at MSU should take steps to ensure that adequate linkages are strengthened and maintained with the international thrust of the United States Department of Agriculture, the Michigan Department of Agriculture, and the private sector in order to make this effort successful.

3. Younger agriscience teachers should be given leadership responsibility to motivate other teachers to make their curriculum more internationally focused.

4. Highly experienced and cosmopolitan agriscience teachers should be included in planning, executing, and evaluating this new endeavor.

5. Arrangements should be made to enable agriscience teachers to participate in various seminars/conferences that will help them become familiar with different aspects of this international thrust.

6. The Michigan Department of Education and the Agricultural and Extension Education Department at MSU should strive to accelerate the implementation and follow through of this program to increase global awareness in agricultural education.

7. For agriscience teachers to understand global agriculture, they should be provided with appropriate reading materials pertaining to making the curriculum more internationally focused.

8. Educators who teach agriscience and natural resources and horticulture subjects should be given additional leadership responsibility to motivate other teachers to make the agricultural education curriculum more internationally focused.

9. Well-circulated newspapers such as the Detroit Free Press, Farmers' Advances, and the Lansing State Journal

should be encouraged to publish more information on international agriculture.

10. Efforts should be made to increase the readership of Agricultural Education Magazine among agriscience teachers.

11. Resources should be made available for teachers to attend international seminars, which will increase their interest and involvement in internationalizing their local agricultural education curriculum.

12. An effort should be made to increase agriscience teachers' membership in professional societies.

13. Additional in-service training programs should be organized to help teachers maximize their efforts to integrate international components in their curriculum.

14. FFA host chapters should encourage interactions between their students and those from other countries.

Recommendations for Further Study

The review of the literature indicated that little research on attitudes of agriscience teachers toward making their curriculum more internationally focused has been conducted so far. As this approach to agricultural education programs in Michigan is very new, every aspect needs to be explored. Although the attitudes of respondents were positive in terms of student-related aspects, teacher-related aspects, and educational linkages of making their

curriculum more internationally focused, additional attention should be given to other factors in regard to internationalizing local agricultural education curriculums. With this end in mind, the following recommendations are made for further study:

1. A study should be undertaken to investigate the relationship between role perceptions and role performance of agricultural teachers in planning, implementing and evaluating programs intended to internationalize the agriscience curriculum in secondary schools.

2. This study should be replicated in other states where internationalizing the agricultural education curriculum has not been given a high priority to see whether the attitudes of teachers in those states are as favorable as the attitudes of Michigan teachers.

3. This study should be replicated in Michigan at some appropriate time in the future to assess whether teachers' attitudes regarding this programming thrust have changed.

4. A study should be conducted to determine what factors are associated with agriscience teachers' participation in internationalizing their curriculum.

5. Students' attitudes toward internationalizing the curriculum should be investigated.

6. The effect of internationalizing the curriculum, when integrated into the total agricultural education program in Michigan, should be evaluated.
7. The in-service training needed by agriscience teachers should be assessed to expand the internationalizing thrust in Michigan.
8. The usefulness of instructional materials provided to agriscience teachers should be evaluated.
9. The factors related to the adoption of international concepts in schools, colleges, and universities should be studied.
10. A study should be done to investigate the perceptions of agriscience teachers, administrators, and parents toward selected issues of internationalizing the agricultural education curriculum.
11. The role of the private sector in internationalizing agricultural education curriculums at the local level should be investigated.

Implications

For effective development and progress in agricultural education, the issue of internationalizing agricultural education curriculums must be addressed. If agriscience teachers in Michigan are to continue their leadership role with respect to this effort, they must have continued involvement in this infusion thrust. More important, the

strategy and amount of involvement should be similar to their involvement in pilot testing and disseminating the materials. In addition, more research must be conducted to overcome obstacles and provide solutions.

Some of the key educational implications and observations derived from this study are as follows:

1. The positive attitudes of agriscience teachers toward internationalizing the agricultural education curriculum appear to be critical in determining their participation in and support of international program thrusts. Seeking the support of policy makers and securing greater resources may be vital in fostering such perceptions among teachers.
2. Providing financial support and release time, and removing situational barriers, will enhance agriscience teachers' belief that internationalizing the curriculum in the secondary schools is necessary and worthwhile.
3. To provide appropriate, broad-based education and to prepare students for the opportunities and responsibilities of the twenty-first century, all agricultural teachers should work toward internationalizing their curricula.
4. Continuing and extensive research needs to be done to maintain and expand the international agricultural education efforts in local schools.

APPENDICES

APPENDIX A

**LETTER OF APPROVAL FROM MSU COMMITTEE ON
RESEARCH INVOLVING HUMAN SUBJECTS**

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

May 1, 1991

Mr. Md. Delwar Hossain
410 Agriculture Hall

Dear Mr. Hossain:

IRB#91-196

Subject: Proposal Entitled, "Attitudes of Agricultural Educators in
Michigan Toward Internationalizing Agricultural Education Programs"

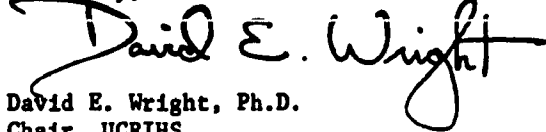
The above project is exempt from full UCRINS review. I have reviewed the proposed research protocol and find that the rights and welfare of human subjects appear to be protected. You have approval to conduct the research.

You are reminded that UCRINS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRINS approval one month prior to April 29, 1992.

Any changes in procedures involving human subjects must be reviewed by the UCRINS prior to initiation of the change. UCRINS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,



David E. Wright, Ph.D.
Chair, UCRINS

DEW/ deo

cc: Dr. Eddie A. Moore

APPENDIX B
NAMES OF JURY MEMBERS

Names of Jury Members

1. Dr. Eddie A. Moore
Professor,
Department of Agricultural and Extension Education
2. Dr. S. Joseph Levine
Professor,
Department of Agricultural and Extension Education
3. Dr. Frederick R. Whims
Professor,
Department of Agricultural and Extension Education
4. Dr. O. Donald Meaders
Professor Emeritus,
Department of Agricultural and Extension Education
5. Dr. Carroll H. Wamhoff
Professor and Chair,
Department of Agricultural and Extension Education
6. Dr. Frank Bobbitt
Professor,
Department of Agricultural and Extension Education
7. Dr. Harrison Gardner
Professor,
Department of Agricultural and Extension Education
8. Dr. Jack Elliot
Assistant Professor,
Department of Agricultural and Extension Education
9. Dr. Patricia Barnes-McConnell
Professor,
Department of Resource Development and
Director, International Agriculture Institute
10. Mr. Charles Arensmeier
Specialist,
Michigan Department of Education

APPENDIX C

LETTER TO JURY MEMBERS AND COMMENT SHEET

Agricultural & Extension Education



Michigan State University
410 Agriculture Hall
East Lansing, Michigan 48824 - 1039
(517) 355 - 6580

FAX (517) 353 - 4981

Date: February 26, 1991

Dear Dr./Mr./Ms.

I would appreciate it if you, as an agricultural educator, would take a few minutes to help me with my study of agricultural educators' attitudes about internationalizing agricultural education programs in Michigan. I have developed a questionnaire that will be distributed to agricultural educators in Michigan to determine how they feel about and act toward internationalizing agricultural education programs.

It would be a great help to me if you would review the enclosed questionnaire for content validity and make any comments or suggestions. Upon receiving your responses and those of other agricultural educators, I will test the reliability of the questionnaire with selected individuals. The final version of the questionnaire will be sent to all Michigan agricultural educators in April.

I have enclosed a comment sheet and a return envelope for your convenience. I shall look forward to receiving your comments by March 12, 1991. Thank you for assisting in this study.

Sincerely,

Md. Delwar Hossain
Ph. D. candidate

Enclosures

Comment Sheet

1. Are the directions clear and easy to understand?
2. Is the content easy to understand? If not, please explain.
3. Are the questions relevant to Agricultural Educators?
4. Do you think any questions should be revised or omitted? Please explain.

5. Is the length of the questionnaire acceptable?
6. In your opinion, is the questionnaire format conducive to eliciting accurate responses?
7. Additional comments.

APPENDIX D

COVER LETTER AND SURVEY QUESTIONNAIRE

Agricultural & Extension Education



Michigan State University
410 Agriculture Hall
East Lansing, Michigan 48824 - 1039
(517) 355 - 6580

Date: April 30, 1991

Dear Fellow Educator:

As a part of his doctoral program at Michigan state University, Md. Delwar Hossain is undertaking a study to determine the attitudes of agricultural educators in Michigan toward internationalizing agricultural education programs.

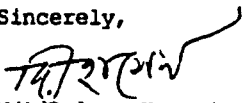
Everyday the world is becoming smaller, and the leadership role of the United States throughout the world is greatly expanding. Therefore, this is an appropriate time to expand our internationalizing agricultural education efforts. Agricultural educators at the local level are the ones who can develop and implement such demanding programs in the United States. To make the internationalization of agricultural education programs successful, it is important to know how the agricultural educators feel about internationalizing thier programs. You can support this project by responding to the enclosed questionnaire. Your responses will be held in strict confidence. No attempt will be made to identify individual respondents.

It will take you about 12 minutes to complete the questionnaire. So that the study can proceed on schedule, we would appreciate it if you would complete and return the enclosed questionnaire within the next seven days. A stamped return-addressed envelope is enclosed for your convenience.

If you would like to have a summary of the study findings, please enclose a note with your name and address and return it with the questionnaire. If you have any questions, please feel free to call Delwar Hossain collect at (517) 355-3143 or Professor Eddie Moore at (517) 355-6580.

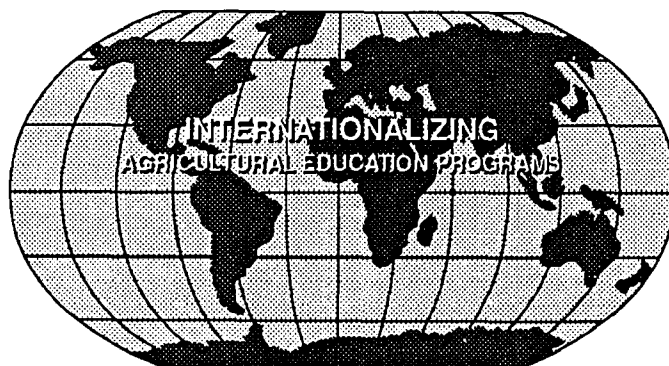
Thank you for your assistance in helping to complete this valuable study.

Sincerely,


Md. Delwar Hossain,
Ph. D. Candidate

 
Eddie A. Moore, Professor
Carroll M. Wamhoff,
Chairperson

Enclosure (2)



AGRISCIENCE TEACHERS

Department of Agricultural and Extension Education
Michigan State University
East Lansing, MI 48824

Respondent Number _____

Please do not write your name on this questionnaire. The respondent number will be used for group analysis and follow-up if needed. All responses are completely confidential.

Directions: The questionnaire is divided into two sections. The first section contains statements concerning how agriscience educators in Michigan feel about various aspects of Internationalizing Agricultural Education Programs (IAEP). There are no "right" or "wrong" responses to these items. The correct response is **YOUR PERSONAL OPINION**. We want to know **HOW YOU FEEL** about each statement. "You indicate your voluntary agreement to participate by completing and returning this instrument."

Please read each statement carefully. Then indicate your agreement or disagreement by circling a response from the scale shown to the right of each statement.

If you STRONGLY DISAGREE, circleSD
 If you DISAGREE, circle.....D
 If you are neutral, circle.....N
 If you AGREE, circle.....A
 If you STRONGLY AGREE, circle.....SA

EXAMPLE:

"The dreamer is a danger to society." SD D N A SA

The response of A indicates that this individual slightly agrees with the statement; the individual support the statement, but not very strongly.

**SECTION I: STATEMENT REGARDING INTERNATIONALIZING
 AGRICULTURAL EDUCATION PROGRAMS (IAEP)**

[International Agricultural Education is a broad instructional area of global agriculture through which students gain an understanding of geographical, political, and economic factors influencing agriculture; global agricultural production and consumption; trends in the production and consumption of food and fiber; agricultural practices in different countries; agricultural trade and banking practices; communication, transportation, and technological developments influencing agriculture; and cultural and religious differences with implications for agriculture.]

STUDENT-RELATED STATEMENTS

(Circle your response)

1. For secondary students to understand global agriculture, they should first have a basic understanding of geography as related to their state such as:
 - a. Location where they reside on a county map. SD D N A SA
 - b. Location of county on a state map. SD D N A SA
 - c. Identification of major cities in the state where large quantities of agricultural products are consumed. SD D N A SA
 - d. Location of major ports for shipping agricultural products. SD D N A SA
2. To help students understand agriculture from a global perspective, they should have a basic understanding of the United States and world geography such as:
 - a. Major regions in the United States. SD D N A SA
 - b. Location of states in major regions in the United States. SD D N A SA
 - c. Seven continents in the world. SD D N A SA
 - d. Location of countries in the world. SD D N A SA
 - e. Major oceans used in shipping agricultural products. SD D N A SA
 - f. Countries that are the most densely populated. SD D N A SA

(Circle your responses)

3. International Agricultural Education Programs (IAEP) will increase student awareness of the need for the United States to work closely with countries around the world for:
- a. Economic benefits SD D N A SA
 - b. Political benefits SD D N A SA
 - c. Humanitarian benefits SD D N A SA
4. Students are more likely to understand global agriculture if they are given instruction about:
- a. Major agricultural products that are produced in the county. SD D N A SA
 - b. What happens to local products once they leave the community. SD D N A SA
 - c. Major agricultural products that are produced in Michigan. SD D N A SA
 - d. Major export markets for Michigan agricultural products. SD D N A SA
 - e. States in the U.S. that are competing with Michigan's major agricultural products. SD D N A SA
 - f. Other countries that are competing with Michigan's major agricultural products. SD D N A SA
 - g. Countries that need and are capable of purchasing Michigan's major agricultural products. SD D N A SA
5. IAEP will increase students' awareness of global agriculture and the effects of American agriculture. SD D N A SA
6. With proper instruction and materials, students will be able to understand basic international agriculture concepts. SD D N A SA
7. Considering the countries that are projected to be the best market for Michigan's major products, students should be instructed on those countries':
- a. Culture SD D N A SA
 - b. Infrastructure (educational system, transportation system, major industries, etc.) SD D N A SA
 - c. Standard of living SD D N A SA
 - d. Natural resources SD D N A SA
8. IAEP will provide students with a global perspective with respect to career opportunities. SD D N A SA
9. Students should be encouraged to participate in the various national FFA international programs (World Agriscience Studies, Work Experience Abroad, Travel Seminars, etc.). SD D N A SA
10. Basic IAEP concepts are not too complex for the average agriscience student. SD D N A SA
11. IAEP will provide students with an appreciation of the interdependency of nations around the world. SD D N A SA
12. IAEP will prepare students for future changes in global agriculture. SD D N A SA
13. Through IAEP, students will have an opportunity to interact with people in other parts of the world. SD D N A SA

(Circle your responses)

14. IAEP will help students understand global agricultural marketing systems. SD D N A SA
15. IAEP will help students function better as citizens in a global society. SD D N A SA

TEACHER-RELATED STATEMENTS

1. I see International Agricultural Education Program efforts as benefiting me personally. SD D N A SA
2. Internationalizing my agriscience program will help in:
- a. Strengthening the program SD D N A SA
 - b. Improving my working relationship with other school personnel. SD D N A SA
 - c. Creating a better relationship with the agricultural community. SD D N A SA
 - d. Recruiting additional students. SD D N A SA
3. IAEP should be given a high priority because US agriculture will benefit from it. SD D N A SA
4. IAEP addresses the issue of a growing international interdependence in the area of agriculture. SD D N A SA
5. Ag teachers need in-service training to internationalize their programs. SD D N A SA
6. I would be interested in attending an in-service training session on how to internationalize my program. SD D N A SA
7. Agriscience teachers who have received inservice training on how to internationalize agriscience programs are likely to be more successful in this integration effort than teachers who have not had such training. SD D N A SA
8. For teachers to understand global agriculture, they should be given selected reading materials that they can easily use in the classroom. SD D N A SA
9. Internationalizing my program is worth the effort. SD D N A SA
10. I am very supportive of the initiative to internationalize agriscience programs in Michigan. SD D N A SA
11. MSU's Department of Agricultural and Extension Education should provide resources to support the infusion of an international dimension into agriscience programs. SD D N A SA
12. I would encourage my students to participate in National FFA international programs. SD D N A SA
13. I would be intested in having my FFA chapter serve as a host chapter for a student from another country for:
- a. 3 weeks SD D N A SA
 - b. 6 weeks SD D N A SA
14. I wish to increase my understanding of global agriculture by participating in a planned overseas study tour. SD D N A SA
15. Agriscience teachers who have been successful in internationalizing their programs should be recognized by:
- a. The Michigan Department of Education. SD D N A SA
 - b. The local school district. SD D N A SA
 - c. The Michigan Association of Agriscience Educators. SD D N A SA

(Circle your responses)

16. A well-implemented IAEP will improve the image of the agriscience teacher. SD D N A SA
17. If statewide IAEP efforts are to be successful, agriscience teachers should be directly involved in:
- a. Planning statewide programs. SD D N A SA
 - b. Implementing statewide programs. SD D N A SA
 - c. Evaluating statewide programs. SD D N A SA
18. I would be willing to serve on an advisory committee for the purpose of strengthening current IAEP thrusts. SD D N A SA
19. Internationalizing agriscience programs has not been pushed too much in this state. SD D N A SA
20. As agriscience teachers, we should view the world as our laboratory to prepare students for working and living in a global society. SD D N A SA

EDUCATIONAL LINKAGES

1. Global education/international understanding should be a part of the philosophy statements of:
- a. The Michigan Department of Education. SD D N A SA
 - b. The Vocational-Technical Education Service. SD D N A SA
 - c. The local school district. SD D N A SA
 - d. The Department of Agricultural and Extension Education at MSU. SD D N A SA
2. Global education/international understanding should be a part of the goal statements of:
- a. The Michigan Department of Education. SD D N A SA
 - b. The Vocational-Technical Education Service. SD D N A SA
 - c. The local school districts. SD D N A SA
 - d. The Department of Agricultural and Extension Education at MSU. SD D N A SA
3. Local global education/international understanding initiatives should be funded by:
- a. The Michigan Department of Education. SD D N A SA
 - b. The Vocational-Technical Education Service. SD D N A SA
 - c. The local school district. SD D N A SA
 - d. Other (specify) _____ SD D N A SA
4. IAEP should be linked directly to international efforts of:
- a. The United States Department of Agriculture. SD D N A SA
 - b. The Michigan Department of Agriculture. SD D N A SA
 - c. The private sector. SD D N A SA
5. International concepts should be integrated into every facet of the school curriculum, including:
- a. Grades K-5. SD D N A SA
 - b. Grades 6-8. SD D N A SA
 - c. Grades 9-12. SD D N A SA

(Circle your responses)

- | | | | | | | |
|----|--|----|---|---|---|----|
| 6. | International concepts should be included in the undergraduate curriculum of college students. | SD | D | N | A | SA |
| 7. | International concepts should be included in university graduate programs. | SD | D | N | A | SA |
| 8. | Local agriscience internationalizing initiatives are more likely to be successful if they involve: | | | | | |
| a. | Michigan Department of Education staff. | SD | D | N | A | SA |
| b. | MSU Department of Agricultural and Extension Education faculty. | SD | D | N | A | SA |
| c. | School administrators. | SD | D | N | A | SA |
| d. | Vocational-Technical Education Service. | SD | D | N | A | SA |
| e. | Local teachers. | SD | D | N | A | SA |
| f. | Local counselors. | SD | D | N | A | SA |
| g. | Advisory committee members. | SD | D | N | A | SA |
| h. | Individual from the local agricultural community. | SD | D | N | A | SA |
| i. | FFA alumni. | SD | D | N | A | SA |
| j. | Parents. | SD | D | N | A | SA |
| k. | Other (specify) _____ | SD | D | N | A | SA |

SECTION II: DEMOGRAPHIC ITEMS

1. Please indicate your primary area of teaching:
 - (1) Agriscience and natural resources
 - (2) Horticulture
 - (3) Agri-Mechanic
 - (4) Agri-Production
 - (5) Agri-Marketing
 - (6) Other (specify)
2. Have you received instructional materials for Internationalizing Agricultural Education Programs?
 - (1) Yes
 - (2) No
3. Your age: _____ YEARS.
4. Please indicate the highest level of formal education you have completed.
 - (1) Less than bachelor's degree
 - (2) Bachelor's degree
 - (3) Master's degree
 - (4) More than Master's degree
5. Do you read the Agricultural Education Magazine?
 - (1) No
 - (2) Yes

If yes, please indicate the number of issues you read during the 1989-1990 year.

 - (1) Fewer than 2
 - (2) 2 - 5
 - (3) 6 - 9
 - (4) 10 or more

6. Do you read newspaper agricultural information?

- (1) No
- (2) Yes

If yes, please mention the name of newspaper(s).

7. How many national seminars/conferences have you participated in during your life?

- (1) Fewer than 2 seminars/conferences
- (2) 2 - 5 seminars/conferences
- (3) 6 - 9 seminars/conferences
- (4) 10 - 13 seminars/conferences
- (5) 14 or more seminars/conferences

8. How many international seminars/conferences have you participated in during your life?

- (1) Fewer than 2 seminars/conferences
- (2) 2 - 5 seminars/conferences
- (3) 6 - 9 seminars/conferences
- (4) 10 - 13 seminars/conferences
- (5) 14 or more seminars/conferences

9. How much teaching experience have you had?

- (1) Fewer than 2 years
- (2) 2 - 5 years
- (3) 6 - 9 years
- (4) 10 - 13 years
- (5) 14 years or more

10. Please indicate your present residence location.

- (1) Rural farm
- (2) Rural non-farm
- (3) Suburban
- (4) Urban

11. Please check all the professional societies/organizations you had membership in during the last five years.

- (a) Michigan Association of Agriscience Educators
- (b) Michigan Education Association
- (c) National Vocational Agriculture Teachers Association
- (d) Association for International Agricultural and Extension Education
- (e) American Vocational Association
- (f) Phi Kappa Phi
- (g) Phi Delta Kappa
- (h) Alpha Zeta
- (i) Gamma Sigma Delta
- (j) Michigan 4-H Agents Association
- (k) Michigan FFA Alumni
- (l) Others (Please, specify) _____

12. About how many times have you changed residence during the past 10 years?

- (1) None
- (2) 1 time
- (3) 2- 3 times
- (4) 4- 6 times
- (5) 7-10 times
- (6) Over 10 times

13. How often do you visit places outside your community for various purposes?
Please indicate your level of visits.

Places Visited	Frequently	Occasionally	Rarely	Never
a. Visits outside your community	15 or more/ month	8-14/ month	1-7/ month	0/ month
b. Visits to county office	15 or more/ month	8-14/ month	1-7/ month	0/ month
c. Visits to other counties/cities	13 or more/ year	7-12/ year	1-6/ year	0/ year
d. Visits to cities with a population >50,000	10 or more/ year	6-9/ year	1-5/ year	0/ year
e. Visits to other states	10 or more/ year	6-9/ year	1-5/ year	0/ year
f. Visits to other countries	3 or more/ year	2/ year	1/ year	0/ year

16. Any comment/suggestion:

Thank you so much for taking time to answer this questionnaire!

APPENDIX E

THANK-YOU AND REMINDER LETTER

Agricultural & Extension Education



Michigan State University
410 Agriculture Hall
East Lansing, Michigan 48824 - 1039
(517) 355 - 6580
May 6, 1991

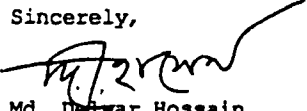
Dear Agricultural Educator:

Last week a questionnaire seeking your opinion about internationalizing agricultural education programs was mailed to you. If you have already completed the questionnaire and returned it, we would like to thank you very much for your coopertaion and participation. If you have not had a chance to complete the questionnaire, we would ask that you do so as soon as possible so that the study can be completed on time.

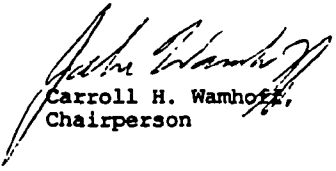
If by some chance you did not receive the questionnaire, or it got misplaced, please call Delwar Hossain collect at (517)355-3143 or professor Eddie A. Moore at (517) 355-6580 and we will send you another one in the mail.

We hope that your year has been a successful one and that you will have an enjoyable spring. Thank you very much for your cooperation and assistance.

Sincerely,


Md. Delwar Hossain,
Ph. D. candidate


Eddie A. Moore,
Professor


Carroll H. Wamhoff,
Chairperson

APPENDIX F
SECOND FOLLOW-UP LETTER

Agricultural & Extension Education



Michigan State University
410 Agriculture Hall
East Lansing, Michigan 48824 - 1039
(517) 355 - 6580

May 20, 1991

Dear Agricultural Educator:

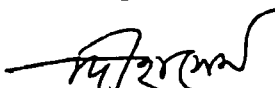
This is the first statewide study of the attitudes of agricultural educators toward internationalizing agricultural education programs. Therefore, the findings will be of great importance to agricultural educators regarding the internationalization of agricultural education programs. The usefulness of the results depends on the number of responses.

In case the initial correspondence regarding the study did not reach you, we are sending a replacement questionnaire by certified mail to insure its delivery. We urge you to complete and return the completed questionnaire by June 10, 1991. Your responses will remain complete confidential. No attempt will be made to identify individual respondents.

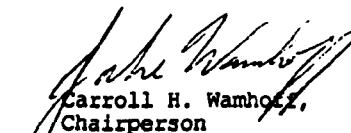
If you wish, we will send you a copy of the results of this study. Simply indicate on the questionnaire your interest in receiving a summary of the study. We expect to have the results ready to send early next winter. If you have any questions, please feel free to call Delwar Hossain collect at (517) 355-3143 or professor Eddie A. Moore at (517) 355-6580.

Your contribution to the success of this study will be greatly appreciated.

Sincerely,


Md. Delwar Hossain,
Ph. D. candidate


Eddie A. Moore,
Professor


Carroll H. Wamhoff,
Chairperson

Enclosures (2)

APPENDIX G

**EDWARDS'S INFORMAL CRITERIA FOR THE
CONSTRUCTION OF ATTITUDE STATEMENTS**

EDWARDS'S INFORMAL CRITERIA FOR THE
CONSTRUCTION OF ATTITUDE STATEMENTS

1. Avoid statements that refer to the past rather than the present.
2. Avoid statements that are factual or capable of being interpreted as factual.
3. Avoid statements that may be interpreted in more than one way.
4. Avoid statements that are irrelevant to the psychological object under consideration.
5. Avoid statements that are likely to be endorsed by almost everyone or by almost no one.
6. Select statements that are believed to cover the entire range of the affective scale of interest.
7. Keep the language of the statements simple, clear and direct.
8. Statements should be short, rarely exceeding 20 words.
9. Each statement should contain only one complete thought.
10. Statements containing universals such as all, always, none, and never introduce ambiguity and should be avoided.
11. Words such as only, just, merely, and others of a similar nature should be used with care and moderation in writing statements.
12. Whenever possible, statements should be in the form of simple sentences rather than in the form of compound or complex sentences.
13. Avoid the use of words that may not be understood by those who are to be given the completed scale.
14. Avoid the use of double negatives.

Source: Edwards, A. Techniques of Attitudes Scale Construction. New York, NY: Appleton-Century Crofts, Inc., 1957, pp. 13-14.

APPENDIX H
SUPPLEMENTARY TABLES

Table 44

Means and Standard Deviations of Agriscience Teachers' Attitudes Toward
Student-Related Aspects of Making Curriculum More Internationally Focused

Statements	Mean*	SD
1. For secondary students to understand global agriculture, they should first have a basic understanding of geography as related to their <u>state</u> such as:		
a. Location where they reside on a county map.	4.49	.73
b. Location of county on a state map.	4.55	.61
c. Identification of major cities in the state where large quantities of agricultural products are consumed.	4.43	.64
d. Location of major ports for shipping agricultural products.	4.32	.67
2. To help students understand agriculture from a global perspective, they should have a basic understanding of the United States and world geography such as:		
a. Major regions in the United States.	4.48	.58
b. Location of states in major regions in the United States.	4.39	.57
c. Seven continents in the world.	4.34	.63
d. Location of countries in the world.	4.22	.72
e. Major oceans used in shipping agricultural products.	4.25	.61
f. Countries that are the most densely populated.	4.31	.63
3. International Agricultural Education Programs (IAEP) will increase student awareness of the need for the United States to work closely with countries around the world for:		
a. Economic benefits	4.18	.69
b. Political benefits	3.88	.76
c. Humanitarian benefits	4.10	.71
4. Students are more likely to understand global agriculture if they are given instruction about:		
a. Major agricultural products that are produced in the county.	4.23	.74
b. What happens to local products once they leave the community.	4.32	.64
c. Major agricultural products that are produced in Michigan.	4.33	.63
d. Major export markets for Michigan agricultural products.	4.23	.60
e. States in the U.S. that are competing with Michigan's major agricultural products.	4.20	.72
f. Other countries that are competing with Michigan's major agricultural products.	4.33	.64

Table 44 (Cont'd)

Statements	Mean*	SD
g. Countries that need and are capable of purchasing Michigan's major agricultural products.	4.31	.66
5. IAEP will increase students' awareness of global agriculture and the effects on American agriculture.	4.07	.72
6. With proper instruction and materials, students will be able to understand basic international agriculture concepts.	4.11	.64
7. Considering the countries that are projected to be the best market for Michigan's major products, students should be instructed on those countries':		
a. Culture	3.72	.86
b. Infrastructure (educational system, transportation system, major industries, etc.)	3.65	.83
c. Standard of living	3.79	.78
d. Natural resources	3.99	.68
8. IAEP will provide students with a global perspective with respect to career opportunities.	3.81	.64
9. Students should be encouraged to participate in the various national FFA international programs (World Agriscience Studies, Work Experience Abroad, Travel Seminars, etc.).	3.88	.79
10. Basic IAEP concepts are not too complex for the average agriscience student.	3.74	.85
11. IAEP will provide students with an appreciation of the interdependency of nations around the world.	3.77	.74
12. IAEP will prepare students for future changes in global agriculture.	3.75	.75
13. Through IAEP, students will have an opportunity to interact with people in other parts of the world.	3.44	.83
14. IAEP will help students understand global agricultural marketing systems.	3.87	.71
15. IAEP will help students function better as citizens in a global society.	3.84	.72
Total	4.11	.40

* Means were calculated on the basis of a five point Likert-scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

Table 45

Means and Standard Deviations of Agriscience Teachers' Attitudes Toward
Teacher-Related Aspects of Making Curriculum More Internationally Focused

Statements	Mean*	SD
1. I see International Agricultural Education Program efforts as benefiting me personally.	3.65	.91
2. Internationalizing my agriscience program will help in:		
a. Strengthening the program	3.52	.87
b. Improving my working relationship with other school personnel.	3.30	.83
c. Creating a better relationship with the agricultural community.	3.47	.76
d. Recruiting additional students.	3.12	.93
3. IAEP should be given a high priority because US agriculture will benefit from it.	3.52	.90
4. IAEP addresses the issue of a growing international interdependence in the area of agriculture.	3.84	.72
5. Ag teachers need in-service training to internationalize their programs.	4.06	.94
6. I would be interested in attending an in-service training session on how to internationalize my program.	3.83	1.05
7. Agriscience teachers who have received inservice training on how to internationalize agriscience programs are likely to be more successful in this integration effort than teachers who have not had such training.	4.19	.76
8. For teachers to understand global agriculture, they should be given selected reading materials that they can easily use in the classroom.	4.17	.71
9. Internationalizing my program is worth the effort.	3.81	.88
10. I am very supportive of the initiative to internationalize agriscience programs in Michigan.	3.85	.82
11. MSU's Department of Agricultural and Extension Education should provide resources to support the infusion of an international dimension into agriscience programs.	3.89	.92
12. I would encourage my students to participate in national FFA international programs.	3.83	.90

Table 45 (Cont'd)

Statements	Mean*	SD
13. I would be intested in having my FFA chapter serve as a host chapter for a student from another country for:		
a. 3 weeks	3.54	.95
b. 6 weeks	3.20	.92
14. I wish to increase my understanding of global agriculture by participating in a planned overseas study tour.	3.47	1.12
15. Agriscience teachers who have been successful in internationalizing their programs should be recognized by:		
a. The Michigan Department of Education.	3.88	1.00
b. The local school district.	3.99	.94
c. The Michigan Association of Agriscience Educators.	3.85	.97
16. A well-implemented IAEP will improve the image of the agriscience teacher.	3.71	.89
17. If statewide IAEP efforts are to be successful, agriscience teachers should be directly involved in:		
a. Planning statewide programs.	3.90	.75
b. Implementing statewide programs.	3.87	.73
c. Evaluating statewide programs.	3.89	.72
18. I would be willing to serve on an advisory committee for the purpose of strengthening current IAEP thrusts.	3.11	1.07
19. Internationalizing agriscience programs has not been pushed too much in this state.	3.48	.90
20. As agriscience teachers, we should view the world as our laboratory to prepare students for working and living in a global society.	4.00	.78
Total	3.71	.52

* Means were calculated on the basis of a five point Likert-scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

Table 46

Means and Standard Deviations of Agriscience Teachers' Attitudes Toward Educational Linkages of Making Curriculum More Internationally Focused

Statements	Mean*	SD
1. Global education/international understanding should be a part of the <u>philosophy statements</u> of:		
a. The Michigan Department of Education.	3.91	.76
b. The Vocational-Technical Education Service.	3.74	.77
c. The local school districts.	3.67	.85
d. Department of Agricultural and Extension Education at MSU	3.91	.80
2. Global education/international understanding should be a part of the <u>goal statements</u> of:		
a. The Michigan Department of Education.	3.87	.84
b. The Vocational-Technical Education Service.	3.71	.82
c. The local school districts.	3.67	.79
d. The Department of Agricultural and Extension Education at MSU.	3.87	.85
3. Local global education/international understanding initiatives should be funded by:		
a. The Michigan Department of Education.	3.95	.90
b. The Vocational-Technical Education Service.	3.64	.97
c. The local school district.	3.37	.98
4. IAEP should be linked directly to international efforts of:		
a. The United States Department of Agriculture.	4.18	.66
b. The Michigan Department of Agriculture.	4.20	.62
c. The private sector.	3.99	.81
5. International concepts should be integrated into every facet of the school curriculum, including:		
a. Grades K-5.	3.64	.94
b. Grades 6-8.	3.90	.81
c. Grades 9-12.	4.18	.82
6. International concepts should be included in the undergraduate curriculum of college students.	4.23	.63

Table 46 (Cont'd)

	Statements	Mean*	SD
7.	International concepts should be included in university graduate programs.	4.13	.70
8.	Local agriscience internationalizing initiatives are more likely to be successful if they involve:		
a.	Michigan Department of Education staff.	3.82	.89
b.	MSU Department of Agricultural and Extension Education faculty.	4.04	.72
c.	School administrators.	3.82	.81
d.	Vocational-Technical Education Service.	3.89	.76
e.	Local teachers.	4.06	.73
f.	Local counselors.	3.89	.73
g.	Advisory committee members.	4.01	.73
h.	Individuals from the local agricultural community.	4.01	.74
i.	FFA alumni.	3.91	.70
J.	Parents.	3.84	.83
	Total	3.89	.52

* Means were calculated on the basis of a five point Likert-scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

REFERENCES

REFERENCES

- Ajzen, I. (1988). Attitudes, personality, and behaviour. Chicago: The Dorsey Press.
- Allport, G. W. (1935). Attitude. In C. Murcheson (Ed.), Handbook of social psychology. Worcester, MA: Clark University Press.
- Ary, D., Jacobs, L., & Razarieh, A. (1990). Introduction to research in education. New York: Holt, Rinehart, & Winston.
- Babbie, E. (1986). Survey research methods. Belmont, CA: Wadsworth Publishing Company.
- Beeman, C. E., & Cheek, J. G. (1990). A Florida perspective on international agricultural education. Agricultural Education Magazine, 52(10), 6-7.
- Bem, D. J. (1970). Beliefs, attitudes and human affairs. Belmont, CA: Brooks/Cole.
- Best, J. W. (1987). Research on education (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Bird, C. (1940). Social psychology. Englewood Cliffs, NJ: Prentice-Hall.
- Bobbitt, F. (1988). Internationalizing agricultural education. East Lansing: Michigan State University, Department of Agricultural and Extension Education.
- Bobbitt, F., & Meaders, D. O. (1987). Policy issues relative to integrating international concepts into local vocational agriculture programs. Agricultural Education Magazine, 59(9), 12-14.
- Borg, W. R. (1981). Applying educational research: A practical Guide for teachers. New York: Longman.
- Borg, W. R., & Gall, M. D. (1979). Educational research: An introduction (3rd ed.). New York: Longman.

- Bowen, B. E. (1987). A proposal: An international society of agricultural educators. Agricultural Education Magazine, 59(9), 3-4.
- Braun, N. (1987). Integrating international concepts into local vocational agriculture programs. Agricultural Education Magazine, 59(9), 9.
- Breer, P. E., & Locke, E. (1965). A task experience as a source of attitude. Homewood, IL: Dorsey Press.
- Brooks, W. K. (1974). A study of attitudes and teacher behavior of occupational orientation teachers in Mississippi. Unpublished doctoral dissertation, The Ohio State University.
- Butts, R. F. (1963). American education in international development (John Dewey Society Lectureship Series). New York: Harper & Row.
- Campbell, D. T. (1963). Social attitudes and other acquired behavioral dispositions. In S. Koch (Ed.), Psychology: A study of a science (Vol. 6, pp.94-172). New York: McGraw-Hill.
- Clausen, J. A., & Ford, R. N. (1947). Controlling bias in mail questionnaires. Journal of the American Statistical Association, p. 42.
- Crews, V. J. (1986). Teachers' attitudes toward merit pay (Doctoral dissertation, University of Virginia). Dissertation Abstracts International, 46(9-10), 2495-A.
- Edwards, A. L. (1957). Techniques of attitude scale construction. New York: Appleton-Century-Crofts.
- Edwards, A. L., & Kilpatrick, F. P. (1948). A technique for the construction of attitude scales. Journal of Psychology, 32, 374-383.
- Esslinger, D. L. (1985). Call for more communication. Extension Review (U.S. Department of Agriculture).
- Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intension, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.
- Frary, R. B. (1977). Comprehensive questionnaire analysis program (COAP). Blackburge: Virginia Polytechnic Institute and State University.

- Glazier, G. D., Jr. (1975). Attitude of selected clientele toward vocational agricultural programs of two county agricultural schools in Massachusetts. Unpublished doctoral dissertation, The Ohio State University.
- Good, C. V. (1945). Dictionary of education. New York: McGraw-Hill.
- Green, B. F. (1954). Attitude measurement. In G. Lindzey (Ed.), Handbook of social psychology (Vol. 1, pp. 335-369). Reading, MA: Addison-Wesley.
- Hamilton, L. C. (1990). Statistics with Stata. Pacific Grove, CA: Brooks/Cole Publishing Company.
- Hill, R. J. (1981). Attitudes and behavior. In M. Rosenberg and R.H. Turner (Eds), Social psychology: Sociological perspectives, (pp. 347-77), New York: Basic Books.
- Hovland, C. I., et al. (1953). Communication and persuasion. New Haven, CT: Yale University Press.
- Husen, T., & Postlethwaite, T. N. (Eds.). (1985). International encyclopedia of education research and studies (Vol. 1). Oxford: Pergamon Press.
- Irwin, L. H. A. (1988). Attitudes of Southern Alberta elementary school teachers toward multicultural education (Doctoral dissertation, Brigham Young University). Dissertation Abstracts International, 48(5-6), 1327-A.
- Janis, I. L., et al. (1959). Personality and persuability. New Haven, CT: Yale University Press.
- Jones, S. P. (1985). An assessment of motivational factors affecting college of agriculture faculty involvement in international development activities. Unpublished doctoral dissertation, Iowa State University.
- Katz, D., & Stotland, E. (1959). A preliminary statement of a theory of attitude structure and change . In S. Koch (Ed.), Psychology: A study of a science (Vol. 3, pp 423-475). New York: McGraw-Hill.
- Kerlinger, F. M. (1973). Foundations of behavioral research. Danville, IL: Interstate Printers & Publishers.

- Khalatbari-Tonekaboni, F. (1986). Perceptions of full-time faculty regarding contributions of international academic or educational activities to faculty development (Doctoral dissertation, George Washington University). Dissertation Abstracts International, 47(1-2), 432-A.
- Krech, D., & Crutchfield, R. A. (1945). Theories and problems of social psychology. New York: McGraw-Hill.
- Likert, R. A. (1932). A technique for the measurement of attitudes. Archives of Psychology, 40.
- Lyons, D. M. (1982). Factors related to the attitude toward the FFA of Eastern Region secondary agricultural teachers. Unpublished doctoral dissertation, Virginia Polytechnic Institute and State University.
- Martin, R. A. (1989). A global perspective for agricultural education. Agricultural Education Magazine, 61(10), 4-5.
- Martin, R. A. (1990). Agricultural educators' role in global education: Unprecedented. Agricultural Education Magazine, 52(10), 4-10.
- Miles, L. (1982). The benign conspiracy. Vital Speeches, 48(10), 43.
- Moore, E. A. (1987). Setting the record straight and increasing our involvement in international agricultural education. Agricultural Education Magazine, 59(9), 5-6.
- Murphy, P. D. (1972). Teaching of employability. Fargo: North Dakota State University.
- Newman, S. W. (1962). Differences between early and late respondents to a survey. Journal of Advertising Research, 2(2), 37-39.
- Oppenheim, A. N. (1966). Questionnaire design and attitude measurement. New York: Basic Books.
- Osgoo, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). The measurement of meaning. Urbana: University of Illinois Press.
- Oskamp, S. (1977). Attitudes and opinions. Englewood Cliffs, NJ: Prentice-Hall.

- Pope, J. (1990). The council of agricultural education operating in an international marketplace. Agricultural Education Magazine, 62(10), 5.
- Remmer, H. H., Gage, N. L., & Rummel, J. F. (1965). A practical instruction to measurement and evaluation. New York: Harper & Row.
- Riley, D., & Richardson, W. (1987). Focus of the Jamaican agricultural education project. Agricultural Education Magazine, 59(9), 17-19.
- Rosenberg, M. J., & Hovland, A. (1960). Cognitive, affective, and behavioral components of attitudes. In C. I. Hovland & M. J. Rosenberg (Eds.), Attitude, organization and change. (pp. 1-14). New Haven, CT: Yale University Press.
- Rubin, A., & Babbie, E. (1989). Research methods for social work. Belmont, CA: Wadsworth Publishing Company.
- Shaw, M. E., & Wright, J. M. (1967). Scales for the measurement of attitudes. New York: McGraw-Hill.
- Sherif, C. W., Sherif, M., & Nebergall, R. E. (1965). Attitude and attitude change: The social judgement involvement approach. Philadelphia: Saunders.
- Sherif, M., & Sherif, C. W. (1956). An outline of social psychology. (rev. ed.). New York: Harper & Row.
- Siefferman, L. D. (1986). A study of the attitudes of postsecondary vocational teachers toward supervision of instruction and effects of selected variables on those attitudes (Doctoral dissertation, Georgia State University). Dissertation Abstracts International, 46(9), 2675-A.
- Smith, L. H. (1985). The influence of attitudes of elementary teachers toward black dialect when teaching the young black child in a school setting (Doctoral dissertation, Texas Women's University). Dissertation Abstracts International, 46(11-12), 3248-A.
- Smith, M. A. D. (1981). Faculty attitudes toward continuing education in Kentucky's public community colleges. Unpublished doctoral dissertation, George Peabody College for Teachers of Vanderbilt University.

- Smith, M. B. (1947). The self-monitoring of expressive behavior. Journal of Personality and Social Psychology, 30, 526-537.
- Smuckler, R., & Sommers, L. (1988). Internationalizing the curriculum. National Forum, pp. 5-12. Cited by R.A. Martin. A global perspective for agricultural education. Agricultural Education Magazine, 61(10), 4-8.
- SPSS/PC+, Inc. (1990). SPSS/PC + base manual. New York: McGraw-Hill.
- Stranger, R. (1941). Attitudes. In W. S. Monroe (Ed.), Encyclopedia of educational research (p.77). New York: Macmillan.
- Summers, G. F. (Ed.). (1970). Attitude measurement. Chicago: Rand McNally.
- Suriyawongse, S. (1988). Attitudes of faculty members in the open universities in Thailand toward media technologies. Unpublished doctoral dissertation, University of North Texas.
- Suyuthie, H. (1989). The attitudes of general senior high school teachers toward career guidance programs in Benkulu, Indonesia (Doctoral dissertation, The Ohio State University). Dissertation Abstracts International, 49(9), 2543-A.
- Symons, W. B., & Cvancara, J. G. (1990). Integrating international mechanics into a high school program. Agricultural Education Magazine, 62(10), 22-23.
- Tenney, R. W. (1981). Relationships between vo-ag and international education. Agricultural Education Magazine, 54(8), 10-12.
- Thompson, J. F. (1966). Career pattern analysis of a selected group of former vocational teachers. East Lansing: Michigan State University.
- Thuemmel, W. L., & Welton, R. F. (1983, Summer). Teacher education activity in international agriculture: A national assessment. AATEA Journal, 40-52.
- Thurstone, L. L., & Cave, E. J. (1929). The measurement of attitudes. Chicago: University of Chicago Press.
- Townsend, J. C. (1953). Introduction to experimental methods. New York: McGraw-Hill.

- Triandis, H. C. (1971). Attitude and attitude change. New York: John Wiley & Sons.
- Ueland, E. O. (1965). Attitudes of high school teachers toward agricultural education in Polk County, Minnesota. Unpublished master's thesis, University of Minnesota, St. Paul.
- Welton, R. F. (1987). Undergraduate and graduate programs: The need for an expanded international dimension. Agricultural Education Magazine, 59(9), 6-8.
- Weirsmas, W. (1985). Research methods in education. Itasca, IL.: E. E. Peacock Publishing.
- Winn, R. B. (1959). John Dewey. Dictionary of education. New York: Philosophical Library.
- Yothapirom, S. (1988). Attitudes of Thai teachers' college faculty toward voluntary participation in rural development activities (Doctoral dissertation, University of Southern California). Dissertation Abstracts International, 48(7), 1742-A.