

THE RELATIONSHIP BETWEEN TEACHER EFFECTIVENESS AND
BELIEFS OF VIRGINIA AGRICULTURAL TEACHERS

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(ABSTRACT)

The purpose of this research was to investigate the relationship between teacher effectiveness and agreement with the philosophy adopted by the Agricultural Education Division of the AVA. The study also investigated the relationship between teacher effectiveness and the strong beliefs about quality vocational agriculture programs held by teachers.

The primary subjects for this study were agricultural teachers in Virginia identified by state supervisors of vocational agriculture and verified by selected teacher educators in agricultural education as the most and least effective agricultural teachers. A total of 40 teachers were identified as most effective and 33 were identified as least effective. In addition, the general population of 368 agricultural teachers in Virginia was used to investigate the relationship between selected demographic variables and agreement with philosophical concepts.

Selected conclusions drawn from the findings were:

1. The philosophy adopted by the Agricultural Education Division, AVA does not contain the beliefs most likely to

distinguish between the most and least effective teachers.

2. There are beliefs not included in the philosophy adopted by the profession that do seem to be related to teacher effectiveness.

3. The most effective teachers are more likely to express beliefs about the teacher being the key to effective programs while the least effective teachers are more likely to express beliefs about external factors being the key to effective programs.

4. Additional education is a better predictor of teacher effectiveness than either age, experience or agreement with any of the specific concepts adopted by the profession.

Selected recommendations drawn from the findings and conclusions are:

1. Research is needed to determine what other beliefs are held by vocational agriculture teachers and how those beliefs are related to teacher effectiveness.

2. Research is needed to determine what factors other than beliefs are related to teacher effectiveness.

3. The philosophy of the profession should emphasize that effective agricultural programs depend on the teacher taking personal responsibility for and being committed to those programs.

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CHAPTER 1

Introduction

Teacher educators in agricultural education have historically emphasized programs that will maximize the effectiveness of agricultural teachers. Most of this training has focused on the "how tos" of teaching agriculture including planning programs and lessons, presenting lessons, developing curricula, supervising youth organizations, supervising occupational experience programs, and organizing and operating departments. Virtually all teacher preparation programs in agricultural education have also included some reference to the philosophy of vocational education and the influence of that philosophy on the specific nature of vocational agriculture programs.

Contemporary pressures for accountability in teacher education have resulted in increased interest in defining and justifying the content of all teacher education programs. Competency-based education has become vocational education's answer to accountability, and many teacher education programs have made an effort to implement competency-based education in teacher training. To accomplish this in agricultural teacher education, the major thrust of recent research has been to identify professional and technical competencies needed by agricultural teachers. Most of these studies have resulted in lists of professional

and technical competencies developed from the opinions of individuals in the profession and validated by agricultural teachers, teacher educators, and state supervisors. More than 25 of these competency studies have been conducted in agricultural education in the past 10 years.

Effective teachers, however, can neither be identified by their command of technical subject matter nor their use of a particular instructional methodology. As Loftis and Ray (1974) point out, the teacher plays a much larger role in the educational process than simply as a disseminator of information, and therefore must possess more than a series of technical competencies. Combs (1969a) adds that a teacher's use of a specific instructional technique has not provided a valid indicator of teacher effectiveness. Combs (1969b) also maintains that the teacher plays the crucial role in the educational process, not simply as a user of techniques, but as an integral component of the educational environment. This "teacher as instrument" view necessitates that research to improve teaching must focus on more than technical and instructional competencies. Therefore, the competency identification approach taken by agricultural teacher educators is not sufficient to prepare effective teachers.

A factor with potential for influencing teacher effectiveness is the beliefs and philosophies held by teachers. This influence is manifested in a variety of

different ways. One body of research on teacher effectiveness has focused on the decisions teachers make and how those decisions impact the educational environment. Many educators have maintained that teacher beliefs influence, at least in part, the decisions teachers make (Borko & Niles, 1982a; Combs, 1965, 1969a, 1969b; Swanson, 1967) and this view has been supported by research on teacher decision making (Ajzen & Fishbein, 1971; Borko & Niles, 1982a, 1982b; Cheong, 1974; Gooding, 1969; Jaccard & King, 1977; Sontag, 1968).

Classroom decision making is not the only area affected by a teacher's belief system or philosophy. Educators have stressed in the literature that a stated philosophy is essential for development of program standards and for program evaluation (Anderson, 1977; Dean, 1982; Swanson, 1967). Others have emphasized the importance of a professional philosophy in setting program direction (Barlow, 1974; Curtis, 1965; Preskill, 1984; Thompson, 1981). Still others have maintained that a philosophy serves an interpretive function, assisting teachers in understanding why they do what they do and in evaluating new methods and curricula (Baatz, 1980; Bishop, 1978; Curtis, 1965; Knape & Rosewell, 1980). Research studies on agricultural teacher competencies have also found that teachers perceive a sound instructional philosophy of vocational agriculture as an important competency for

agricultural teachers to possess (Cheek & Beeman, 1978; Witmer, 1979).

A few studies have specifically investigated the relationship between teacher beliefs and teacher effectiveness. Gooding (1969) conducted an investigation comparing the perceptual organization or beliefs of teachers judged to be the very best and the very poorest by the teachers' supervisors. Gooding found that teachers judged to be the best possessed a different general frame of reference, different perceptions of the teaching task, different perceptions of themselves, and different perceptions of others, than did the teachers judged to be the poorest. White (1976) found that teachers who possessed more positive beliefs about others were perceived by students as being more effective than teachers who possessed less positive beliefs about others. Fabian (1976) discovered that the more competent teachers as determined by supervisors received higher scores on instructional philosophy than did less competent teachers.

In a study of agricultural teachers, Schutz (1976) investigated teachers identified as most and least successful. He found that the most successful teachers were better able to "uphold the philosophy and goals of the profession" (p. 84) than were the least successful teachers (gamma coefficient = 1.0).

The value that the profession places on a teacher's philosophy is evident in the literature. For example, yearbooks of the American Vocational Association including The Philosophy for Quality Vocational Education Programs (Barlow, Ed., 1974) and the Future of Vocational Education (Swanson, Ed., 1981) have addressed philosophical issues. Agricultural educators took an additional step toward a unified philosophy when the Agricultural Education Division of the American Vocational Association (AVA) adopted The Philosophy of Vocational Agricultural Education at the AVA Convention in December of 1975. That statement listed key concepts "that provide a stability and direction" to the vocational agriculture program (Agricultural Education Division, 1976).

The adoption of a philosophy by the professional organization, however, does not automatically mean educational practice will be improved. The beliefs adopted by the professional organization must first be accepted by those teachers who are responsible for implementing the program and secondly those beliefs must have a positive influence on teacher effectiveness.

While the studies and literature cited support the position that teacher beliefs are related to teacher effectiveness, more questions need to be answered before changes are made in the agricultural teacher education curricula. Specifically, research needs to be conducted in

agricultural education to discover what beliefs, if any, are related to teacher effectiveness.

Statement of the Problem

Research to guide agricultural teacher educators in creating effective teacher education programs has focused primarily on identifying specific teacher competencies. A review of literature indicates that this approach by itself is not sufficient and that teacher beliefs are related to teacher effectiveness. Very little research has been conducted on the beliefs of agricultural teachers and what relationship those beliefs have to teacher effectiveness. While the agricultural education profession has adopted an official statement of beliefs, no research has been found that has investigated whether teachers accept those beliefs and whether those beliefs are correlated with teacher effectiveness.

Purpose of the Study

The purpose of this research was to investigate the relationship between teacher effectiveness and agreement with the philosophy and key concepts adopted by the Agricultural Education Division of the AVA. Additional purposes of the study were to investigate the strong beliefs about quality vocational agriculture programs held by the most and the least effective teachers, the relationship between selected demographic variables and teacher

effectiveness, and the relationship between selected demographic variables and teacher agreement with the philosophy adopted by the Agricultural Education Division of the AVA.

Research Questions

Specific research questions were:

1. What is the relationship between teacher effectiveness and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?

2. What is the relationship between teacher effectiveness and teacher agreement with each of the key concepts adopted by the Agricultural Education Division, AVA?

3. In what ways are beliefs about vocational agriculture held by the teachers identified as the most effective different from the beliefs held by the teachers identified as the least effective?

4. What is the relationship between teacher effectiveness and selected demographic variables?

5. What is the relationship between selected demographic variables and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?

Definition of Terms

The terms used in the context of this study were defined as follows:

Philosophy of vocational agriculture education -- The statement developed by the Agricultural Education Division Policy Committee and adopted by the Agricultural Education Division of the AVA at its annual meeting in 1975--approved for publication in 1976.

Teacher effectiveness--A judgment made by state supervisors of agricultural education in Virginia and verified by teacher educators of agricultural education on the relative ability of teachers to teach vocational agriculture students and conduct vocational agriculture programs.

Belief--Mental acceptance of or conviction in the truth or actuality of something. In this study beliefs were expressed as agreement with the philosophical concepts adopted by the profession and the agricultural teachers' responses to the open-ended question about their thoughts on what makes quality agricultural programs.

Most effective teacher--Agricultural teacher identified by his or her state supervisor of agricultural education in Virginia to be among the most successful in teaching vocational agriculture students and conducting a vocational agriculture program when compared to the agricultural teacher population in that supervisor's respective area.

Least effective teacher--Agricultural teacher identified by his or her state supervisor of agricultural education in Virginia to be among the least successful in teaching vocational agriculture students and conducting a vocational agriculture program when compared to the agricultural teacher population in that supervisor's respective area.

Summary

The development of effective teacher education programs is a goal of agricultural teacher educators. Much of the contemporary research related to teacher education has focused on validating competencies needed by agricultural teachers. While the profession has emphasized the importance of teacher beliefs to effective teaching and has adopted an official statement of such beliefs, little research has been conducted to determine how those beliefs are related to teacher effectiveness and whether teachers agree with the official philosophy developed. This study investigated the relationship between teacher effectiveness as judged by state supervisors and teacher beliefs as determined by agreement with the philosophy and key concepts developed by the Agricultural Education Division, AVA. This study also investigated teacher effectiveness as it related to teachers' responses to an open-ended question about their beliefs and to selected demographic variables. Finally, the

study investigated the relationship of selected demographic variables and agreement with the philosophical statement adopted by the Agricultural Education Division, AVA.

CHAPTER 2

Review of Literature

Introduction

The desire to improve teacher effectiveness and the pressure for accountability in education has caused many agricultural teacher education programs to initiate research into the development and validation of technical and professional competencies needed by those teaching vocational agriculture. Research in other fields of education, however, has indicated that this approach for the preparation of teachers may not be sufficient (Borko, Cone, Russo, & Shavelson, 1979; Bussis, Chittenden & Amarel, 1976; Combs, 1965, 1969a). These authors point out that teaching is more than implementation of a prescribed series of instructional methods and that the success of a particular method is affected by the beliefs of the teacher using the technique. Cheong (1974) points out, however, that research on teacher effectiveness has "failed to heed and/or purposely attempted to avert the philosophical domain" (p. 30).

Teacher educators in agricultural education therefore need to consider the role of a philosophy for individual teachers, the effect teacher beliefs have on instructional and program decisions and practices, and the resulting

effect of teacher beliefs on teacher effectiveness. Agricultural teacher educators also need to consider the beliefs traditionally held by those in agricultural education and the role played by those specific beliefs. This chapter reviews the relevant literature for each of these topics.

Role of Philosophy and Beliefs of Teachers

Educators who have written about philosophical issues seem unanimous in the belief that a sound philosophy is essential. Studies that have sought to identify and validate competencies needed by agricultural teachers have found that teachers, administrators, and teacher educators have all identified expression of a sound personal philosophy of education and vocational education as an important competency (Cheek & Beeman, 1978; Dean, Stewart, Elias, & Dyrenfurth, 1983; Witmer, 1979).

Several arguments have been advanced to defend this position. First, educators have cited the concept that education is a "value-laden enterprise" (Hughes & Schultz, 1976, p. 105) that is inextricably tied to societal goals (Allen, 1974; Miller, 1974). Teacher actions involve more than simple transmission of information. Those actions and the decisions on which they are based transmit the teacher's perceptions of the value of the information and how that information should be interpreted, integrated, and applied.

Making those decisions based on something more than the circumstances of the moment requires some sort of philosophical basis (Knape & Rosewell, 1980). Curtis (1965) maintains that every educational aim reflects a philosophy of life. The existence of vocational education itself expresses a philosophy about the purpose of public education, particularly at the secondary level. If education truly is a value oriented endeavor, then the values and beliefs of teachers must be considered along with the teacher's command of the subject matter and pedagogical skills in order to understand the educational process. Decisions to emphasize a specific technological skill or to focus on student leadership abilities are value oriented decisions quite different from the ability to give an effective demonstration or wire an electrical circuit.

Second, the development of a personal educational philosophy also serves an interpretive function for the teacher, allowing that teacher to become conscious of his or her own assumptions (Baatz, 1980, p. 2). As Marshall (1973) points out, before they can effectively deal with the teaching of values, teachers must first understand their own values and beliefs. This understanding helps teachers integrate what they do with the larger perspective of what they think education ought to accomplish. It helps them develop reasons and then plans for making decisions in areas like classroom management (Knape & Rosewell, 1980). A well

developed philosophy also guides teachers in making decisions about new curricula and teaching methods that they otherwise might not be able to evaluate (Curtis, 1965).

A third reason advanced to support the importance of an educational philosophy for teachers centers around program improvement. According to Preskill (1984), philosophy provides direction that can then be clearly articulated to administrators and policymakers (p. 16). Dean (1982) found in a study of standards for program evaluation that experts considered philosophy and objectives to be a major component for evaluating programs. Swanson (1967) and Anderson (1977) also stress the importance of a strong philosophy in the development of meaningful program standards. Anderson states, "Standards which grow out of anything other than a sound philosophical base and defensible educational principles can lead only to further prejudices and emotional reactions from those who are regulated by the standards" (p. 3). The interest in standards for agricultural education has continued to increase. In Virginia, for instance, vocational teachers are required to conduct a self evaluation of their programs every five years based on the state standards adopted for the program. The Virginia standards for vocational agriculture are based on standards developed as part of a national study. According to the views of the authors cited, the degree to which teachers

will meet these standards will depend in part on the beliefs and philosophies held by those teachers.

Section summary. The literature indicates that an educational philosophy is important because of the value-laden nature of education, the necessity for teachers to understand their own values to be effective, the need to help teachers make decisions and plans about educational goals and methods, and the need to provide a basis for program evaluation and improvement. These reasons have been supported as being applicable to vocational agriculture as well as to education in general.

Philosophies, Beliefs and Teacher Behavior

A number of studies in education have investigated the relationship between teacher beliefs and teacher actions or educational outcomes. Although these studies have not been able to identify the specific role beliefs play in every educational situation, they do support the importance of teacher beliefs in understanding teacher behavior. According to Sturges (1982), "We know that our belief systems influence what we do and how we do it, but our backgrounds are often too limited to understand fully the influences our belief systems have on ourselves and others" (p. 100). Shulman and Elstein (1975) emphasize the importance of research investigating how teachers think about their pupils instead of research on simply what the

teachers do in the classroom (p. 3). A few of the studies that have evaluated the relationship between beliefs and behavior have been presented.

Several studies have indicated a relationship between beliefs and behavioral intentions (Ajzen & Fishbein, 1971; Jaccard & King, 1977; King, 1975). These studies have used behavioral intentions on the basis that "the immediate antecedent of behavior is an individual's intention to perform that behavior" (King, 1975, p. 237) and that the simplest way to determine if a behavior is likely to occur is to ask the subject if they intend to perform that particular behavior. King found a correlation of $r = .899$ between intentions to perform a behavior and actual behavior (p. 241). All three studies found relatively high correlations ($r = .59$ to $.78$) between beliefs and behavioral intentions.

Researchers have also looked directly at the relationship between beliefs and teacher decisions. Several of these studies used a policy capturing approach where teachers were asked to make decisions based on descriptions of various instructional and managerial situations. Borke and Niles (1982a) found that experienced teachers with content oriented belief systems used different strategies to group students than did teachers with student oriented belief systems. Sontag (1968) discovered a relationship between the traditional and progressive beliefs of teachers

and what those teachers saw as the major emphasis in their teaching. Thompson (1980) discovered that role ideals and philosophical beliefs (essentialism, humanism, perennialism, progressivism, rationalism, and existentialism) were systematically related to teachers' instructional preferences. Borko and Niles (1982b) also found in a policy-tracing study, where teachers were asked to explain the reasons for the decisions they had made, that teacher judgments and decisions about teaching reading had been based on beliefs.

In studies using actual observations of teachers, Bawden, Buike and Duffy (1979) and Duffy and Metheny (1979) found that teacher beliefs about reading were reflected in their behavior. Bawden, et al. (1979) found that older teachers were more likely to have a skills-oriented conception while younger teachers were more likely to have child-centered conceptions and that the teachers' conceptions were reflected in their instructional methodology. Sherman, Brophy, Evertson and Crawford (1976) found that teachers with traditional beliefs produced students who scored more consistently on standardized achievement tests than those teachers with progressive beliefs. Not all of the traditional teachers produced consistently higher scoring students, however. Dobson, Goldenberg and Elsom (1972) investigated the relationship between humanistic and custodial belief systems and found

that humanistic teachers used more verbal behaviors that were categorized as accepting and developing student ideas, and that students of humanistic teachers initiated more talk. Dobson, Hopkins and Elsom (1973) found that teachers scoring high on the Philosophies of Human Nature scale (indicating a positive view of man) used indirect nonverbal communication while teachers with a low score used direct nonverbal communication. They also found that students of the high scoring teachers used more nonverbal communication than the other students. Murphy and Brown (1970) discovered that a teacher's belief system based on a scale from concrete to abstract was reflected in the way that teacher handled information and applied sanctions. A relationship between teacher beliefs about students and the way teachers taught was discovered by Palardy (1969) and Swann and Snyder (1980). Finally, Cheong (1974) found that student teachers' beliefs about John Dewey's philosophy of experimentalism were significantly correlated with those students' instructional practices.

Not all research on teacher beliefs, however, has demonstrated a relationship to teacher behavior. Borko and Cadwell (1982) found that knowing whether a teacher had a progressive or traditional philosophy did not help in predicting differences in teacher judgments of student achievement. A study by Childress and Dobson (1973) found no significant relationship between teacher beliefs about

the nature of man and children's perception of the educational environment. Duffy and Anderson (in press) concluded from research they had done on reading conceptions that while a relationship did exist between beliefs and practice, that relationship was not particularly strong.

An inspection of the studies conducted, along with suggestions by various researchers, provide several reasons for the nonconformity in research findings. First, situational variables may take precedence over a particular belief (Lemon, 1973). For instance, a teacher may believe one method of teaching is better when another method has been mandated. Duffy and Anderson (1982) found that teachers who were judged as being more proactive in their teaching had no mandates while the teachers judged as less proactive had mandates. They also found that teaching behavior was often tied to the text that had been prescribed. Several researchers have found that age and school setting moderate the beliefs teachers hold and the actions they take (Bawden et al., 1979; Sontag, 1968). Still, situational variables do not necessarily negate the effect of teacher beliefs on behavior. It would seem logical to assume that if a situational variable seems to be taking precedence over a particular belief system that is being tested, that the teacher has other beliefs that are in fact controlling the teacher's actions. White (1976) also points out that while incongruence may occur for some reason

or another, an instructor's behavior will tend to conform to basic belief patterns over time.

The second explanation for the lack of congruence between a measured belief and measured behavior is competing beliefs (Insko & Schopler, 1971). All of the studies cited have evaluated some particular belief system such as progressive versus traditional or conceptions about reading. In most of those studies where these beliefs were not found to predict teacher actions, there was unfortunately no way to determine if some other beliefs were taking precedence. Duffy and Anderson (in press) did find that where the teachers' conceptions about reading did not seem to be controlling those teachers' actions, other beliefs about the nature of instruction and of classroom life did. Borko and Niles (1982b) used a policy tracing technique by which they followed teachers' reasoning in making certain decisions. They found "both participants' judgments and decisions were strongly influenced by general themes or value positions" (p. 287). These beliefs, however, were not those conceptions about reading that had been tested in earlier studies. For instance, one teacher was "guided by her belief that student characteristics can balance each other out" (p. 287).

The question, therefore, does not seem to be, "Do beliefs held by teachers influence teacher decisions and behavior?" but rather, "What beliefs held by teachers

influence their decisions?" The challenge for researchers in this field is to identify the salient beliefs and to determine whether the beliefs discovered can be identified and categorized in such a way that they can be used to improve teacher effectiveness.

The third reason cited by researchers for mixed findings regarding the relationship between beliefs and behavior is the congruence (or lack of) between the level of the belief measured and the level of the behavior predicted. As Wicker (1969) states, "many instances of inconsistency may be due to the fact that the stimulus in verbal response situations tends to be very general while the stimulus in overt behavioral response situations tends to be highly specific" (p. 72). Wicker also conducted a study to test this explanation and found that as the specificity of the attitude object more closely approximated the specificity of the behavior, the consistency increased. Other studies have found that use of a combination of beliefs and a more global rating of behavior resulted in a better prediction of the behavior from the beliefs (Fishbein, 1971; Gooding, 1969; King, 1975; Thompson, 1980).

Section summary. Research does seem to indicate a relationship exists between teacher beliefs and teacher decisions and actions. Although situational variables cause that relationship to be less than perfect and at times overshadow the relationship altogether, those studies that

discovered the "right" beliefs or combination of beliefs and that matched the specificity of the beliefs measured to the specificity of the behavior predicted, found that beliefs were useful in predicting teacher behavior.

While the studies cited thus far do not conclusively relate teacher beliefs directly to teacher effectiveness, they do provide insight into an important link in that relationship. They also point out that if teacher beliefs can be changed, the educational environment as impacted through the teacher can also be changed.

Philosophies, Beliefs and Teacher Effectiveness

Several studies have focused directly on the relationship between philosophy, beliefs and teacher effectiveness. Researchers in Florida identified possible beliefs or perceptual continua they felt would be pertinent for differentiating good and poor practitioners in the helping professions, including teaching (Combs, 1969b). In a series of studies evaluating counselors (Combs & Soper, 1969), pastors (Benton, 1969), and teachers (Gooding, 1969), the researchers found a "strong relationship between the perceptual organization of the person and his effectiveness as a professional worker" (Gooding, 1969, p. 32). In all of these studies, effectiveness was determined by judgments made by supervisors considered to be in the best position to make those evaluations.

White (1976) conducted a study comparing college instructors' beliefs to perceptions of teaching effectiveness provided by students. He found that instructors with positive beliefs about others were perceived as being more effective than instructors with less positive beliefs about others.

Fabian (1976) and Schutz (1976) conducted research designed to verify instruments measuring teacher proficiency in pedagogical tasks using global judgments of teacher effectiveness. Although each researcher used a different population of teachers and a different instrument, they both found that the teachers judged to be most effective performed significantly better on the pedagogical tasks than the teachers judged to be the least effective. Fabian also found that the portion of the instrument measuring instructional philosophy discriminated between the most and least effective teachers. Schutz found that agreement with upholding the philosophy and goals of the profession, which included "developing and expressing a philosophy of vocational and technical education that is consistent with the goals of the teaching profession" (p. 83), was completely discriminating between the most and least effective teachers. Unfortunately, Schutz did not attempt to define the specific beliefs that constituted agreement with the philosophy of the profession.

Section summary. All of the studies cited that found a relationship between beliefs and teacher effectiveness used a global or overall rating of teacher effectiveness and a rather broad measure of teacher beliefs. The specific question for agricultural education is what beliefs might agricultural teachers possess that would influence their actions as teachers? A review of the literature reveals numerous beliefs that have been advanced as important for agricultural education.

Philosophy and Beliefs in Agricultural Education

The goals, beliefs and philosophy of vocational education have been debated since vocational education became a part of the total educational system. Some people have maintained that vocational education does not have a consistent, workable philosophy or that it has many conflicting philosophies (Bottoms, 1984). Others say that vocational education, and specifically vocational agriculture, does have a clearly articulated philosophy (Love, 1978). Melvin Barlow introduced the American Vocational Association's yearbook on the future of vocational education by saying:

Vocational education has a deep, rich and abiding heritage and its basic aims have withstood the test of time. The foundations of this mammoth social and economic movement have been carefully delineated over a long period. (Barlow, 1981, p. 21)

Barlow also stressed the need to look at the foundations of vocational education to determine the directions that should be taken in the future. The aims as expressed in the various beliefs and philosophies of vocational education, however, have not been universally defined or accepted by vocational educators. In the early years of formal vocational education in the United States people such as Prosser, Snedden and Keller attempted to define a philosophy. The statement most familiar to those in agricultural education is Prosser's 16 Theorems (Prosser & Quigley, 1949). Prosser was concerned about the adherence of regular schools to the "old faculty psychology and the doctrine of formal education" (p. 215). He thought these practices seriously hampered the social efficiency of the schools. Prosser maintained that vocational education needed to adopt radically new techniques, and articulated 16 theorems which were "in keeping with modern psychology, the accepted democratic philosophy of education, and the realities of American vocations" (p. 215). The theorems included matching the learning environment to the work environment, only providing vocational education to those who wanted it and could profit by it, tailoring the education to the individual student's interests and aptitudes, the importance of repetition, the necessity for instructors to have actual job experience, the importance of providing an entry level skill acceptable to industry,

providing training for jobs as they exist in industry, tailoring the training methodology to the group, and the importance of providing the necessary resources to insure the other theorems could be accomplished (Prosser & Quigley, 1949, pp. 217-235). Prosser also stressed the need to keep vocational education out of the hands of general educators and to separate clearly the goals of vocational and general education. According to Greenwood (1981) the philosophic rationale developed by Prosser and his contemporaries was different from other educational philosophies at that time. Greenwood also contended that Prosser's intention was to reform the educational system by expanding the curriculum to include job preparation activities.

Recent statements of philosophical positions in agricultural education have suggested that vocational education has drifted away from Prosser's principles, and have strongly urged a return (Anderson, 1977; Cross, 1981). Cross particularly stressed that the effectiveness of vocational agriculture was in jeopardy because of trends to broaden the mission and liberalize the definitions of purpose. Other vocational educators, however, have taken issue with Prosser on several key beliefs. One of these was his social efficiency doctrine. This doctrine implied that vocational education was a tool of industry and that individuals should be identified early according to their interests and competencies and put on an educational track

that would train them for a specific role in the job market for the good of society as a whole (Camp, 1982; Wirth, 1972a, 1972b). In Prosser's (Prosser & Quigley, 1949) own words:

Organized vocational training can therefore be regarded as one of the agencies whereby the State can more efficiently secure social wealth. The trend toward the more systematic training noted above is nothing more than the realization that this fact is true. It therefore follows that in proportion to our ability to substitute organized vocational education for unorganized vocational education, social progress will be furthered, more social wealth will be produced at less cost, and society will be better equipped to carry on its struggle against nature. (p. 12)

Dewey, a philosopher to whom many vocational educators look for providing many of their basic principles, expressed his dissatisfaction with this view:

The kind of vocational education in which I am interested is not one which will "adapt" workers to the existing industrial regime; I am not sufficiently in love with the regime for that. It seems to me that the business of all who would not be educational time-servers is to resist every move in this direction, and to strive for a kind of vocational education which will first alter the existing industrial system and ultimately transform it. (Dewey, 1915, May 15, p. 42)

According to Wirth (1972a) the early philosophy of vocational education defined by Prosser and others was too narrow to meet the needs of a changing society. Wirth also contended that Prosser's ideas perpetuated class distinctions and inhibited equalization of society.

Other vocational educators have also argued for a more liberal role for vocational education. One of the first

vocational education philosophers to do so was Keller (1948). He stated in the introduction to his book, The Principles of Vocational Education:

This book is about life and education--not a segment of education, or education at any "level." It is called vocational education because vocation--what a person does to live ... is conceived as a focus for many other values, as an integrating principle in a diverse life Vocational education is not job training. It is not perfection of skills. It is not tricks of the trade. It is not haggling in the marketplace, wrangling in law courts, breaking of soil, or binding of wounds. It is all of these, but is much more It is attitudes, emotions, ethics, conduct, language, and beauty--those attributes that transform jobs into vocations and men and women into their neighbors' keepers and into citizens of the world. (pp. 3-4)

In an address to vocational teachers in Canada, Osborne (1981) also advocated that vocational education should not be so closely tied with the economy and that the definition should be broadened. Other people have advocated that vocational education broaden its role by emphasizing meeting student needs as the first priority (Bender, 1972; Krebs, 1972), focusing on broad concepts even at the expense of skill training (Selland, 1984), incorporating nonoccupation-specific training into programs (Bottoms, 1984), incorporating career exploration and development education into programs (Miller, 1976), and using vocational education as a vehicle to improve basic education skills (Carr, 1984; Clawson & Shealey, 1984; Mrachek, 1984; Rexrode, 1976; Sydorenko, 1984; Truxal, 1984). A study of vocational

agriculture graduates also indicates support for this expanded definition. Iverson (1980) found over 92% of the former graduates gave the program high ratings even though 47% were not in agricultural occupations. The graduates perceived many of the skills learned as useful in a nonagricultural career and rated the program as valuable in teaching them how to get along, how to work, and how to perform in leadership situations.

Another group of related themes is the importance of problem solving education, the linking of theory to practice, and the importance of experience (Archer, 1976; Dewey, 1938; Leising, 1977; Noguera & Allen, 1984). According to these themes, vocational education must involve a variety of meaningful, practical experiences that encourage students to develop and apply problem solving skills. The emphasis should be on learning to solve problems and applying the training received rather than on mastering any one specific skill.

Two other views have constantly surfaced in agricultural education. One is the contention that careers addressed by vocational education are appropriate for all students, not just those with limited academic skills (Hamlin, 1984). The other is the importance of focusing on the emotional and developmental needs of students and affective educational outcomes such as social and leadership skills (Foster, 1976; Miller, 1974).

One final issue with both philosophical and methodological implications is competency based education (CBE). In many ways CBE is simply an extension of the position of Charles Prosser and his contemporaries. Competency based education focuses on developing specific skills which are needed in some specific job in the industry. The state of Virginia has mandated that all vocational programs be competency based and this thrust has its supporters and critics. Some maintain CBE is the best way to avoid duplication of effort, insure that students leave the program with saleable skills, and document accountability. Others see CBE as limiting vocational education to the least common denominators, as precluding important types of education such as problem solving and career exploration, and as treating students too much like trainees for a specific industry (Loftis & Ray, 1974).

A few studies have been conducted which have investigated the beliefs of those in vocational agriculture. Researchers in Iowa (Iowa State University, 1977) made a comprehensive effort to "assess the purpose and role of agriculture and agribusiness education programs in Iowa as a part or component of the educational process and describe its approach to meeting current and future individual and societal needs" (p. 1). These researchers developed seven basic philosophical principles for agriculture and agribusiness education. These principles were that

agriculture and agribusiness education: (a) is oriented toward the biological and social needs of the person and toward society for which the individual is being educated, and is concerned with assuring a continuing supply of raw and processed materials to meet basic human needs; (b) is directed largely toward the management of the factors, forces, processes, and resources involved in the conduct of agricultural enterprises; (c) has as a major premise that experience is the context in which human beings live and therefore learn; (d) stress problem solving as the optimum way to learn; (e) is pragmatic in its orientation; (f) must be characterized by flexibility and adaptability rather than rigidity; and (g) focuses on the interdependence of agriculture and the rest of society (Iowa State University, 1977, pp. 35-38).

An instrument was developed for the Iowa study that listed a series of subprinciples for each of the principles. The instrument was then administered to eight groups: agricultural instructors; agricultural students; school superintendents; high school principals/career education directors; school board members; other teachers; state supervisors; and teacher educators. Results showed that all of the groups agreed with all of the principles as reflected by the subprinciples. Two studies conducted as part of the Iowa research focused specifically on the philosophical principles of experience and problem solving (Archer, 1976;

Leising, 1976/1977). Archer (1976) found that the groups all generally agreed with the subprinciples dealing with problem solving. He found, however, that teacher educators and state supervisors considered the subprinciples to be significantly more important than did the agricultural teachers. Leising (1976/1977) found all groups perceived experience to be an important principle. Leising also found that the teacher educators and state supervisors rated the experience subprinciples significantly higher than did the other groups.

Three studies were found which analyzed Prosser's Theorems. Thoman (1981) investigated whether vocational teachers in Nevada concurred with the theorems. She found the highest concurrence with theorems 1, "Vocational education will be efficient in proportion as the environment in which the learner is trained is a replica of the environment in which he must subsequently work," and theorem 15, "The administration of vocational education will be efficient in proportion as it is elastic and fluid rather than rigid and standardized." Thoman found the lowest concurrence with theorems 5, "Effective vocational education for any profession, calling, trade, occupation or job can only be given to the selected group of individuals who need it, want it, and are able to profit by it," and theorem 12, "For every occupation there is a body of content which is peculiar to that occupation and which practically has no

functioning value in any other occupation." Thoman also found that the mean of agreement with Prosser's Theorems for 41% of the teachers was between a 2.5 and 3.5 on a 5 point scale with 3 representing no opinion and 4 and 5 representing agreement. Although she concluded that those teachers may not have a soundly developed philosophy, the results might also simply reflect a lack of support for the original philosophy espoused by Prosser.

Taylor (1981) also conducted a study to investigate the effect of demographic variables on agreement with Prosser's Theorems. She found no relationships. Morgan (1980) conducted a study of administrators in Tennessee using Prosser's Theorems and concluded that principals and vocational directors were using differing philosophies to make decisions. The vocational directors were more in agreement with the philosophy than were the principals.

At Oregon State University the philosophies (essentialist or progressive) of experienced teachers of vocational education who were enrolled as graduate students in an Educational Professional Development Act program were compared to the philosophies of undergraduate sophomores at the same university. The researchers found no differences in philosophies between the groups and found both teachers and the students exhibited a progressive philosophy (Fuller, 1976). Another study at Oregon (Phillips, 1973) compared the teacher attitudes of nondegree, new-degree, and

experienced vocational teachers. Once again, the groups reflected similar attitudes.

Section summary. The studies cited indicate that there is support among teachers and others involved in agricultural education for many of the beliefs discussed earlier. The studies also indicate, however, that there is not universal agreement among the different groups in the profession and that some of the early philosophical beliefs are not necessarily supported by the teachers. Those beliefs that limit vocational education to a narrowly defined population and purpose seem to have the least support.

The debate over the beliefs essential to agricultural education has involved a large number of issues, but most can be summed under one major theme: the tension between training a student for a specific job in industry or providing a student with expanded career options. All of the positions taken on CBE, problem solving, experience, affective skill development, career exploration, the role of industry, and the relationship of vocational education to general education seem to revolve around this one theme.

Although the issues discussed in this section involve problems on a programmatic level, they are also important for the individual teacher. An agricultural teacher has much flexibility in deciding what to emphasize in any particular teaching situation. Decisions about whether to

focus on a specific competency, general concepts, problem solving, affective skills, or career exploration can make the same subject matter look very different when taught by different teachers. These decisions could also have an impact on teacher effectiveness. The question, then, is where to start measuring this impact?

Philosophy Adopted by the Agricultural Education Profession

Vocational educators have made several concentrated efforts to develop a philosophy for the profession. In 1974 the American Vocational Association published a yearbook, The Philosophy for Quality Vocational Education Programs. This yearbook did not, however, try to define an overall philosophy. According to the editor:

The chapters in the book provide fertile ground for exploring fundamental topics because the authors have exhibited sufficient differences of opinions to provide a discussion base. Time and again, the various authors have hit upon the same or similar topics, but differ in philosophic orientation. (Barlow, 1974, p. 5)

The American Vocational Association has also published Contemporary Concepts in Vocational Education (Law, Ed., 1971), The Individual and His Education (Krebs, Ed., 1972), and The Future of Vocational Education (Swanson, Ed., 1981), all of which deal, at least in part, with philosophical issues.

In 1975 the Agricultural Education Division of the American Vocational Association (AVA) took an additional

step and developed and adopted a philosophical statement for the profession, The Philosophy of Vocational Agricultural Education. This statement consists of a preface and a list of key concepts.

In general, the philosophy adopted attempts to address all of the major themes expressed by others in vocational education. For instance, the philosophy states that vocational agricultural education is to be a service to the individual and a service to industry. It does not attempt to define, however, how conflicts between those two goals might be resolved or what role each of the goals should play in developing and implementing programs. It also stresses the importance of specific job training, but includes a statement on the role of vocational education for career exploration. The statement also mentions the importance of leadership and social skill development, and the development of positive attitudes toward learning and working. The philosophy stresses the need for vocational agriculture to be in harmony with the total educational system, but also emphasizes its uniqueness. A complete text of the adopted philosophy has been placed in Appendix A. Although the philosophy was adopted by the agricultural education profession at its annual meeting, no research was discovered by this investigator as to how or whether the beliefs expressed were being incorporated by teachers or whether those beliefs were related to teacher effectiveness. Also,

little research was discovered to determine what other beliefs agricultural teachers might have that could be related to teacher effectiveness.

Role of Teacher Education in Influencing Beliefs

The literature suggests that teacher beliefs do have an influence on teacher effectiveness. It also suggests that teacher educators do not always agree with teachers about the most appropriate beliefs for agricultural education, but that these differences are generally a matter of strength of agreement with a particular belief or principle rather than disagreement over the belief.

A few studies have been conducted which support the importance of teacher education in the formulation of teacher beliefs. Cheong (1974) demonstrated that a teacher education program can change the philosophical orientation of students and that those students will implement the learned philosophy in their teaching practices. Thoman (1981) found that teacher educators had more influence than any other group in the development of the individual philosophies of agricultural teachers. According to Combs (1965), however, teachers do not develop a personal educational philosophy by simply being told what they should believe. They must be provided opportunities to discover their own philosophy through guided group activities and by being provided opportunities to solve problems that require

development of a philosophical foundation. Hughes and Schultz (1976) add that teachers continue to develop and refine their beliefs as they gain more experience.

Section summary. The research is certainly not conclusive, but it would seem that teacher education in agricultural education does impact teacher beliefs, and that this impact could occur in both preservice and inservice education. It therefore would be profitable if teacher educators knew how the beliefs and philosophy they are imparting impact teacher effectiveness so that a more systematic approach could be developed for preparing future teachers.

Review of Research Methodology Adopted for This Study

According to Combs (1969b), differentiating effective teacher practice from ineffective teacher practice is virtually impossible using objective measures of teacher knowledge or behavior. Other studies have also indicated the importance of looking at some global rating of behavior rather than a specific behavior when studying the relationships between belief systems and behavior (Benton, 1969; Bruvold, 1973; Fishbein, 1971; Gooding, 1969; Thompson, 1980; Wicker, 1969). Expert judgment is one way of determining effectiveness without focusing on a specific behavior. Two studies conducted with vocational teachers support the use of expert judgment in differentiating

between the most and least effective teachers.

Fabian (1976) found that teachers separated by supervisors into two extreme groups based on effectiveness also differed on two separate instruments used by observers to measure pedagogical skills. Schutz (1976) discovered that teachers judged as being most and least effective based on a combination of judgments from teacher educators, state supervisors, and school principals also differed as predicted by the judgments on an instrument used by observers to measure pedagogical competencies.

Extreme groups were also supported by the literature as more likely to produce measurable differences than using the entire spectrum of teachers (Childress & Dobson, 1973; Dobson, Goldenberg, et al., 1972; Dobson, Hopkins, et al., 1973).

Rationale for inclusion of demographic variables. The demographic variables chosen for analysis in this study were whether teachers taught junior high and/or high school, level of education attained by the teacher, age of teacher, years teaching in current position, and total years of teaching experience. Research has indicated that these variables are related to teacher effectiveness.

Education obtained by the teacher was shown to be related to teacher competence by Fabian (1976). Schutz (1976) also found educational levels to be related to teacher competence as well as the variables of age and years

of experience. White (1976) discovered a relationship between students' perceptions of teaching effectiveness and the length of time the teacher had taught in the present position.

Studies have also found relationships between teacher beliefs and the demographic variables in question. Duffy and Anderson (in press) and Bawden, Buike and Duffy (1979) found a relationship between teacher age and teacher orientation (content versus pupil). Cheek and Beeman (1978) found that age of teachers affected their perception of the importance of professional role and development. Hughes and Schultz (1976) found that older teachers were better able to define their philosophy than were younger teachers. Borke and Niles (1982a) also reported a similar finding. Witmer (1979) found that educational levels affected agreement with the importance of developing a philosophy and Blezek (1982) and Cheek and Beeman (1978) reported a relationship between perceptions of the importance of teacher roles and educational levels. Blezek and Cheek and Beeman also found a relationship between years of teaching experience and perceptions of the importance of various teacher roles. Finally, Duffy and Anderson (1982) discovered that teacher beliefs were related to the age of students taught.

Conclusion

According to Miller (1974):

Nearly everyone has strong beliefs about how the potential of our human resources can best be realized through the educational process. Yet, relatively few act as though they were aware of how fundamentally important the organizational behavior of the educational system is in realizing this potential. The way the system has been organized determines how it will act toward the different beliefs and ideals of people, what educational objectives are emphasized and how they will be accomplished. (p. 35)

The literature would indicate that the same thing could be said about individual teacher beliefs. Teacher beliefs do have an influence on teacher behavior and subsequently on teacher effectiveness. The profession of agricultural education has debated the importance of various philosophies and beliefs and has adopted an official statement of those beliefs. While considerable research has been done in agricultural education to identify technical and pedagogical competencies needed for effective teaching, very little research has been done to determine what teacher beliefs are important. This study was an attempt to fill that void.

CHAPTER 3

Research Design and Methodology

Introduction

The research methodology used in this investigation was descriptive in nature, using descriptive statistics to describe the relationships of interest. Since the study dealt with a population, inferential statistics were not deemed appropriate and were not used.

Subjects

The primary subjects for this study were agricultural teachers in Virginia identified by state supervisors of vocational agriculture and verified by selected teacher educators in agricultural education as the most or least effective agricultural teachers. Forty teachers were eventually included in the most effective teacher group and 33 teachers were included in the least effective teacher group. In addition, the general population of 368 agricultural teachers in Virginia was used to investigate the relationship between selected demographic variables and agreement with the philosophy of the profession.

Procedures for Selecting Subjects

Virginia is divided into five geographical areas for administration of agricultural programs. Each of these

areas has its own state supervisor who is responsible for the vocational agriculture programs in that area.

The five state supervisors of vocational agriculture in Virginia were asked to list the criteria they would use to identify the most effective and least effective teachers in their respective areas. To increase the likelihood that the state supervisors were using a similar basis for making their judgments, the criteria provided by each supervisor were assembled and presented to all of the supervisors at a joint meeting. The supervisors were then asked to discuss the criteria presented and, as a group, to agree upon the criteria they thought were most important for making their selections of the most and least effective teachers. The criteria agreed upon are listed in Appendix B. Each of the five supervisors was then requested to use the criteria to identify 11% of the most effective and 11% of the least effective teachers in his supervisory area. The supervisors were also asked to identify an additional 3% of their teachers as alternates for each of the two categories. This resulted in 40 teachers and 13 alternates for each of the teacher groups.

The names of all the teachers identified were then randomized and presented to a group of agricultural teacher educators from Virginia Polytechnic Institute and State University and Virginia State University. The teacher educators were asked as a group to categorize each teacher

on the list as among the most or least effective in Virginia. After this categorization, the names of the teachers on the original supervisor lists of the 40 most and 40 least effective teachers were inspected by the researcher. If the teacher educators disagreed with the state supervisors on the placement of a particular teacher or were unable to verify the state supervisors' placement because of unfamiliarity with that teacher, the researcher dropped the teacher from the subjects to be studied and a replacement was selected at random from the appropriate group of alternates upon whom the state supervisors and teacher educators agreed as being the most or least effective. This procedure resulted in 40 teachers being identified for the most effective teacher group and 33 teachers identified for the least effective teacher group.

Instrumentation for the Study

The instrument used for this study consisted of three parts: (a) an open-ended question asking the teachers to list the strong beliefs they held that were important to quality programs in agricultural education; (b) a list of philosophical concepts taken from The Philosophy of Vocational Agricultural Education adopted by the Agricultural Education Division, American Vocational Association (AVA) (1976); and (c) questions seeking demographic information on whether the teachers taught

junior high and/or senior high school, level of education attained by the teacher, age of teacher, years teaching in current position, and total years of teaching experience.

The open-ended question was designed to answer research question number 3, "In what ways are beliefs about vocational agriculture held by the teachers identified as the most effective different from the beliefs held by the teachers identified as the least effective?" The open-ended question was pilot tested by four agricultural teachers from the Virginia Agricultural Teacher Education Advisory Committee to determine if it would result in interpretable beliefs about vocational agriculture. The four teachers were not included in the actual study. These four teachers were asked, "List the strong beliefs you hold about vocational agriculture education that you think are important to program quality." The teachers' responses indicated that the teachers did understand the question and that the question would result in a usable list of teacher beliefs for analysis.

The second part of the instrument was used to answer research questions 1 and 2, "What is the relationship between teacher effectiveness and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?" and "What is the relationship between teacher effectiveness and teacher agreement with each of the key concepts adopted by the Agricultural

Education Division, AVA?" This part of the instrument consisted of philosophical concepts taken directly from the preface and key concepts sections of The Philosophy of Vocational Agricultural Education adopted by the Division of Agricultural Education, AVA (1976). The language of the concepts was changed (a) to make the individual statements a grammatically correct completion of the initial statement on the questionnaire: "Vocational agriculture should:," and (b) to limit the statements to one idea. According to Kerlinger (1973) statements that "contain more than one idea to which a respondent can react should be avoided" (p. 486). For example, the first concept in The Philosophy of Vocational Agricultural Education is "Vocational agricultural programs are developed and conducted as a part of the educational systems and are in harmony with a total philosophy of education for the individual and the society." This concept appeared in the instrument as two items: "be developed and conducted as part of educational systems" and "be in harmony with a total philosophy of education for the individual and society." The adapted items developed for the instrument were then submitted to a panel of teacher educators to determine if all of the statements in The Philosophy of Vocational Agricultural Education were accurately represented on the survey.

The extent of the teachers' agreement with each of the items on this part of the instrument was evaluated using a 1

to 6 Likert-type scale with 1 representing "Strongly disagree," 2 representing "Disagree," 3 representing "Tend to disagree," 4 representing "Tend to agree," 5 representing "Agree," and 6 representing "Strongly agree." Kerlinger (1973) states that Likert-type scales have an advantage in that individuals can express the intensity of their opinions or attitudes toward the items. A 6- point scale was chosen rather than a 5- or 7- point scale to avoid the problems created in interpreting a middle point (Frery, 1983). The reliability of this part of the instrument was estimated using Cronbach's Alpha.

The third part of the instrument, dealing with the demographic data, was used in answering research questions number 4, "What is the relationship between teacher effectiveness and selected demographic variables?" and 5, "What is the relationship between selected demographic variables and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?" Research question 5 involved the general population of agricultural teachers in Virginia.

The entire instrument was pilot tested by 12 senior agricultural education students to determine if anything was confusing or difficult to understand. As a result of their comments, two of the statements were slightly modified to improve readability and the survey format was altered to increase understandability and to facilitate completion.

The survey was submitted again to a panel of university professors who recommended that several of the concepts be separated into two items to avoid the possibility that an item might be representing more than one idea or concept.

Data Collection Procedures

Data for this study were collected via a mailed instrument (Appendix C). The instrument was sent to all agricultural teachers in Virginia. Each survey was coded to facilitate follow-up, identification of the most and least effective teachers, and awarding of the computer. The instrument was mailed with a cover letter (Appendix D) asking for the teachers' cooperation and informing them that their responses would entitle them to a chance at winning a personal computer. A postcard (Appendix E) emphasizing the importance of their reply was sent to all teachers who had not returned a survey after one week. Two weeks after the initial mailing (one week after the postcard) a follow-up cover letter (Appendix F) and a survey were sent to all teachers who had not yet responded. One week after the final follow-up letter the researcher phoned those teachers in the most and least effective subject groups who still had not returned a survey. The call encouraged them to return the survey as soon as possible. Several personal contacts were used to finalize collection of the data from the teachers in the most and least effective groups.

Analysis of the Data

Data analysis consisted of three parts: analysis of the open-ended question on the beliefs of the teachers; analysis of the Likert-type scale items; and analysis of the demographic items.

The open-ended question was analyzed using content analysis. According to Berelson (1952) content analysis can be done using words, themes, characters, items, and space and time measures (p. 136). The unit most appropriate for this study was the theme. According to Carney (1972), appropriate categories are crucial to content analysis (p. 167) and Berelson suggests that these categories be as concrete as possible (p. 148). Berelson also states that the categories must express the research questions under consideration. Since the research question in this study dealt with the beliefs held by agricultural teachers, the categories developed reflected the actual beliefs expressed by the teachers. A classical content analysis was used in this study meaning that the categories of beliefs were drawn from the agricultural teachers themselves. The categories were initially developed with a series of pilot tests done on a sample of responses. Initially, ten instruments were randomly selected from the most and least effective teacher groups, five from each group. The answers to the open-ended question, "List the strong beliefs you hold about vocational agriculture education that you think are important to

program quality" were used by the researcher and another agricultural teacher educator to develop an initial list of theme categories. Both individuals worked independently to increase the likelihood that all of the beliefs would be accurately represented in the categories. These lists were then compared, modified, and combined by the researcher and the teacher educator to provide the best possible fit for the beliefs expressed by the teachers from the initial pilot sample. Ten additional instruments randomly selected from the most and least effective groups were then analyzed by the researcher and a different teacher educator, using the categories developed with the first group of teachers. Additional categories not expressed by the first group were also noted. The new categories were then compared, modified and added to the list. An additional 10 instruments randomly selected from the teachers in the most and least effective groups were then analyzed by the researcher and three other teacher educators using the categories developed. The percentage of overlap between each teacher educator and the researcher was calculated to provide a measure of reliability (Carney 1972, p. 175). The percentages were 75%, 82.2% and 81.5%. After slight modification of the categories a second test of reliability was conducted using the same procedure as before. Two teacher educators were used for the second test and percentages of overlap were 75% and 82%.

To answer research question 3, the surveys from the most and least effective teachers were combined and randomized to prevent the possibility of researcher bias. Each response was then analyzed, using the categories developed, by counting the frequency of each of the themes expressed by the teachers. Additional themes that did not fit into one of the categories were recorded verbatim. A summary of those beliefs has been placed in Appendix G. The analysis of each response was coded so the number of themes in each category could later be separated and totaled for the most and least effective teacher groups.

Analysis of data collected from the open-ended question was descriptive in nature. Differences between the beliefs of the two groups were presented by describing the percentages of themes listed by each of the teacher groups.

The second part of the instrument, consisting of the philosophical concepts, was analyzed using means, standard deviations, and correlation coefficients. To answer research question number 1, ratings of the concepts were summed and averaged to form an overall rating of agreement with the philosophy adopted by the Agricultural Education Division, AVA (1976) for each respondent. A biserial correlation coefficient was calculated comparing agreement with the total philosophy and teacher effectiveness.

To facilitate analysis and discussion of the individual items for research question number 2, a factor analysis was

performed to group the items. The factor analysis was conducted on the responses from the general population of agricultural teachers since the number of teachers from the most and least effective groups was too small for a factor analysis. The results were used to group the individual items for discussion. No attempt was made to discover a limited number of major underlying constructs through the analysis. The initial factor extraction technique used was principal axis factoring which removes the unique variance contributed by each variable before extracting the factors (Child, 1970; Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975; SPSS Inc., 1983). The criterion used to determine whether a factor would be included was a minimum eigenvalue of one. This criterion is considered to be the most reliable when the number of variables is between 20 and 50 (Child, 1970, p. 43). This study had 40 variables which were factor analyzed. The factors were then rotated using the varimax rotation method which maximizes the variance accounted for by each factor (Nie, et al., 1975). A minimum factor loading of .3 was used to determine if a variable belonged with a particular factor (Child, 1970).

A biserial correlation coefficient was then calculated for each of the concepts as well as each of the factors, comparing the most and least effective teacher groups.

According to Hinkle, Wiersma and Jurs (1979), a biserial correlation is:

appropriate when one variable is measured on a nominal scale and the other variable is measured on at least an interval scale ... The use of the biserial assumes that the nominal scale measurement of the first variable actually has underlying continuity and is normally distributed, but the data for this variable are used in the form of a dichotomy. In some cases, measurement may be so crude or inexact that it is dichotomous, even though the variable is theoretically continuous and normally distributed. (p. 105)

It can be argued that if sensitive enough measures were available, judgments of teacher effectiveness would be a continuous variable. Sherman, Brophy, Evertson, and Crawford (1976) conducted a study in which they found that teacher effectiveness was normally distributed. It can also be assumed that the Likert-type rating scale produces interval level data. For these reasons the biserial correlation was deemed appropriate for analysis of research questions 1 and 2.

Effect sizes for purposes of discussing the data for research questions 1 and 2 followed Cohen's (1969, pp. 76-77) recommendations: Small effect size-- $r = .10$; medium effect size-- $r = .30$; Large effect size-- $r = .50$.

The third part of the survey, used to answer research questions 4 and 5, was analyzed with frequencies and correlation coefficients. For research question 4, the data on whether the teacher taught junior high and/or senior high school were analyzed using frequencies. Biserial

correlation coefficients were calculated to measure the relationship between teacher effectiveness and each of the remaining demographic variables.

The responses from the general population of agricultural teachers in Virginia were used to answer research question number 5. The data on whether the teacher taught junior high and/or senior high school were analyzed using frequencies. Pearson product-moment correlation coefficients were calculated to compare the remaining demographic variables and agreement with the overall philosophy adopted by the profession. Effect sizes for analyzing the relationship of the demographic variables to teacher effectiveness and to agreement with the philosophical concepts were the same as those used for the second part of the survey.

CHAPTER 4

Findings

Introduction

The findings presented in this chapter were based on data collected from vocational agriculture teachers in Virginia. The majority of the findings focused on two groups of teachers identified by state supervisors of vocational agriculture as the most or least effective. A few of the findings focused on the overall population of Virginia agricultural teachers.

Response to Instrument

A total of 368 agricultural teachers in Virginia were mailed instruments. After two follow-ups, 285 instruments were returned yielding an overall response rate of 77.4%. A third follow-up was conducted for those teachers in the most and least effective groups since the numbers in those groups were small and a near 100% response was deemed necessary. This follow-up resulted in a final response of 39 out of 40 (97.5%) for the most effective teachers and 30 out of 33 (90.9%) for the least effective teachers.

Findings Related to Research Questions

Research question number 1: What is the relationship between teacher effectiveness and teacher agreement with the

philosophical statement adopted by the Agricultural Education Division, AVA?

The items on the instrument representing the philosophical concepts of the profession were rated by the most and least effective agricultural teachers on a 1 to 6 summated rating scale with 1 representing "strongly disagree," 2 representing "disagree," 3 representing "tend to disagree," 4 representing "tend to agree," 5 representing "agree," and 6 representing "strongly agree." The ratings on the individual concepts were summed and averaged to create an overall score representing extent of agreement with the philosophy of the profession. A Cronbach's alpha (SPSS Inc., 1983) reliability coefficient was calculated for the concepts using the 69 teachers in the most and least effective teacher groups. The alpha value was .927 which indicated that summing the concepts would provide a reasonably reliable estimate of an overall rating of agreement.

The means of the overall strength of agreement scores of the most effective ($M = 5.279$; $SD = .379$; $n = 35$) and of the least effective ($M = 5.190$; $SD = .438$; $n = 28$) groups indicated that each group agreed with the philosophy adopted by the agricultural education profession. A positive correlation coefficient of .14 indicated that the most effective teachers agreed more strongly with the philosophy than the least effective teachers, but that the effect size

or amount of variance explained by group membership was small.

Research question number 2: What is the relationship between teacher effectiveness and teacher agreement with each of the key concepts adopted by the Agricultural Education Division, AVA?

The means of each of the items on the instrument representing the philosophical concepts were calculated for the most effective teacher group and the least effective teacher group. All of the concepts received a mean rating of 4.7 or higher by each of the groups. The concepts rated the highest (over 5.5) by each of the most and least effective teacher groups and their respective means were: vocational agriculture should be available for youth at the high school level ($\bar{M} = 5.744$, $\bar{M} = 5.600$); vocational agriculture should employ competent personnel at all levels who have expertise in the field for which they are responsible ($\bar{M} = 5.718$, $\bar{M} = 5.767$); and vocational agriculture should serve the individual student ($\bar{M} = 5.590$, $\bar{M} = 5.533$). The most effective teachers also agreed strongly with the concept, vocational agriculture should be developed and conducted as part of educational systems ($\bar{M} = 5.667$). Only one concept, vocational agriculture should provide education for retraining ($\bar{M} = 4.718$), ($\bar{M} = 4.767$), received ratings below 5.0 from both the most and least effective teacher groups. Other concepts receiving ratings

below 5.0 for the most effective teacher group included: vocational agriculture should consider the competencies of the individual student when programs are established (\underline{M} = 4.820); and vocational agriculture should balance the quantity of programs with employment patterns at the local, state, and national levels--in that order (\underline{M} = 4.842). In addition to the concept of providing education for retraining, the least effective teachers rated four other concepts below 5.0: vocational agriculture should be unique in its student goals (\underline{M} = 4.967); provide a time commitment of sufficient length and intensity to provide instruction important to the successful entrance of the student into the chosen occupation or entrepreneurship (\underline{M} = 4.933); provide a time commitment of sufficient length and intensity to provide instruction important to the successful advancement of the student within the chosen occupation or entrepreneurship (\underline{M} = 4.800); and be developed and conducted using an advisory group consisting of individuals representing business and industry in the occupational area in which the program is being offered (\underline{M} = 4.833). The mean ratings of all of the concepts ranked according to the most effective teachers are presented in Appendix H.

A factor analysis of the concept ratings based on responses from the general population of agricultural teachers in Virginia was conducted to facilitate grouping and discussing the concepts. The initial extraction

resulted in 10 factors with an eigenvalue of over 1.0. The first factor accounted for 28.6% of the variance, the second factor accounted for 6.8% of the variance, and the final factor accounted for 2.5% of the variance. It should be noted that the first factor accounted for the largest amount of the variance and that most of the concepts initially loaded on the first factor (Appendix I).

The factors were then rotated using the varimax rotation technique. A loading of .3 or higher was considered sufficient to place a concept with a factor (Child, 1970). The rotated analysis resulted in seven concepts loading on factor 1, six concepts loading on factor 2, three concepts loading on factor 3, five concepts loading on factor 4, six concepts loading on factor 5, four concepts loading on factor 6, two concepts loading on factor 7, two concepts loading on factor 8, three concepts loading on factor 9, and two concepts loading on factor 10. All of the concepts loaded on at least one factor. Seven of the concepts had a loading of .3 or higher on two factors. These were: vocational agriculture should be responsive to the needs of the individual for developing occupational responsibility, loading on factors 1 and 3; vocational agriculture should be responsive to needs for communication skills, loading on factors 1 and 10; vocational agriculture should be unique in its instructor qualifications, loading on factors 2 and 4; vocational agriculture should use

advisory committees, loading on factors 4 and 6; vocational agriculture should provide for a choice of agricultural occupations, loading on factors 4 and 6; and vocational agriculture should relate to the productivity of people in terms of competencies in agricultural occupations and attitudes toward occupations, both loading on factors 3 and 9. One concept, vocational agriculture should help the student define his/her occupational objective, loaded on factors 4, 6 and 10. In each case the concept was placed with the factor in which it had the highest loading.

The concepts forming each of the factors were then inspected for similarities and factor titles were assigned based on those similarities. The 10 factors identified are presented in tables 1 through 10.

Means, standard deviations and biserial correlation coefficients were calculated for each of the concepts as well as each of the factors. The factor means were calculated by averaging the means of the concept ratings composing each factor. These data are also presented in tables 1 through 10. The effect sizes suggested by Cohen (1969) were used to discuss the relationships between the teacher groups. An effect size of .5 was considered large, .3 was considered medium, and .1 was considered small.

The philosophical concepts composing the factor, "vocational agriculture should respond to individual needs for nonoccupation-specific training," are presented in Table

1. The factor had a correlation coefficient of .11 which indicated that the most effective teachers agreed more strongly with the factor than did the least effective teachers, but that the amount of variance explained by group membership was small. Six of seven individual concepts had positive correlation coefficients, but only three of the concepts had coefficients indicating at least a small effect size. In each case, the most effective teachers agreed more strongly with the concept than did the least effective teachers. The concept with the largest coefficient was vocational agriculture should be responsive to the needs of the individual for the skills of citizenship ($r = .22$). The other two concepts with a small effect size dealt with responding to individual needs for communication skills ($r = .11$), and developing a positive attitude towards learning ($r = .15$). The one concept with a negative correlation dealt with responding to the needs of the individual for developing occupational responsibility ($r = -.09$) with an effect size just under .1. It should be noted that this concept was also loaded on factor 3, "vocational agriculture should prepare individuals for jobs existing in industry," which also had a negative correlation.

The factor, "vocational agriculture should be a unique educational program," and its corresponding six philosophical concepts are presented in Table 2. The most effective teachers agreed more strongly with this factor

Table 1
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Respond to Individual Needs for Non-
Occupation-Specific Training.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be responsive to the needs of the individual for the skills of communication.	<u>M</u>	5.205	5.067	.11
	<u>SD</u>	.656	.980	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for the skills of citizenship.	<u>M</u>	5.333	5.067	.22
	<u>SD</u>	.737	.740	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for the skills of leadership.	<u>M</u>	5.474	5.400	.07
	<u>SD</u>	.603	.675	
	<u>n</u>	38	30	
Vocational agriculture should be responsive to the needs of the individual for the skills of decision-making.	<u>M</u>	5.385	5.367	.02
	<u>SD</u>	.544	.765	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for developing a positive attitude towards learning.	<u>M</u>	5.385	5.200	.15
	<u>SD</u>	.673	.847	
	<u>n</u>	39	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 1 continued.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be responsive to the needs of the individual for developing personal responsibility.	<u>M</u>	5.461	5.367	.09
	<u>SD</u>	.555	.809	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for developing occupational responsibility.	<u>M</u>	5.308	5.400	-.09
	<u>SD</u>	.614	.675	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	5.357	5.267	.11
	<u>SD</u>	.428	.635	
	<u>n</u>	38	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 2
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Be a Unique Educational Program.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be a unique and identifiable program which combines the skills and technical content of various disciplines with the practical requirements of the world of work, rather than as a discipline itself.	<u>M</u>	5.128	5.033	.07
	<u>SD</u>	.732	1.066	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its utilization of community resources.	<u>M</u>	5.179	5.067	.09
	<u>SD</u>	.601	.944	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its facility and equipment needs for instruction.	<u>M</u>	5.308	5.067	.16
	<u>SD</u>	.766	1.081	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its curriculum.	<u>M</u>	5.359	5.267	.07
	<u>SD</u>	.668	1.112	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its instructor qualifications.	<u>M</u>	5.395	5.033	.23
	<u>SD</u>	.638	1.245	
	<u>n</u>	38	30	
Vocational agriculture should be unique in its student goals.	<u>M</u>	5.308	4.967	.23
	<u>SD</u>	.694	1.129	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	5.289	5.072	.20
	<u>SD</u>	.490	.871	
	<u>n</u>	38	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

than did the least effective teachers. The total factor rating had a small effect size of .20 which indicated that 4% of the variance in the factor means for the two groups could be explained by group membership. Three of the individual concepts had positive correlation coefficients with at least small effect sizes: vocational agriculture should be unique in its facility and equipment needs ($\underline{r} = .16$), in its instructor qualifications ($\underline{r} = .23$), and in its student goals ($\underline{r} = .23$).

The three concepts composing the factor, "vocational agriculture should prepare individuals for jobs existing in industry," are presented in Table 3. This factor had a negative correlation coefficient ($\underline{r} = -.13$) with the least effective teachers agreeing more strongly with the factor than the most effective teachers. Two of the concepts had correlation coefficients over $-.1$: focusing on preparing individuals for work ($\underline{r} = -.13$), and balancing the quantity of programs with employment patterns ($\underline{r} = -.14$). In each case the correlations represented a small effect size explaining approximately two percent of the variance in the ratings.

The fourth factor with five concepts, "vocational agriculture should provide education to allow people to change occupations," is presented in Table 4. This factor had virtually zero correlation ($\underline{r} = -.01$). Two of the individual concepts, however, had correlations with small

Table 3
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Prepare Individuals for Jobs Existing
in Industry.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should focus on preparing individuals for work.	<u>M</u>	5.231	5.400	-.13
	<u>SD</u>	.842	.814	
	<u>n</u>	39	30	
Vocational agriculture should focus on preparing individuals for entrance into the work force or entrepreneurship.	<u>M</u>	5.308	5.367	-.05
	<u>SD</u>	.766	.850	
	<u>n</u>	39	30	
Vocational agriculture should balance the quantity of programs with employment patterns at the local, state, and national levels -- in that order.	<u>M</u>	4.842	5.067	-.14
	<u>SD</u>	.945	1.015	
	<u>n</u>	38	30	
Total factor rating.	<u>M</u>	5.132	5.278	-.13
	<u>SD</u>	.717	.661	
	<u>n</u>	38	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 4
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Provide Education to Allow People to
Change Occupations.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should provide education for choice of an agricultural occupation through career motivation, career orientation, and career exploration.	<u>M</u>	5.282	5.133	.11
	<u>SD</u>	.759	.937	
	<u>n</u>	39	30	
Vocational agriculture should provide education for upgrading.	<u>M</u>	5.026	5.000	.02
	<u>SD</u>	.778	.983	
	<u>n</u>	39	30	
Vocational agriculture should provide education for retraining.	<u>M</u>	4.718	4.767	-.03
	<u>SD</u>	.857	1.040	
	<u>n</u>	39	30	
Vocational agriculture should provide individuals with the capacities to continue to learn and transfer their skills to meet the changing job requirements of the agricultural sector.	<u>M</u>	5.256	5.400	-.12
	<u>SD</u>	.677	.814	
	<u>n</u>	39	30	
Vocational agriculture should employ competent personnel at all levels who have expertise in the field for which they are responsible.	<u>M</u>	5.718	5.767	-.06
	<u>SD</u>	.559	.504	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	5.200	5.213	-.01
	<u>SD</u>	.554	.594	
	<u>n</u>	39	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

effect sizes. The concept dealing with enabling individuals to continue to learn and adapt their job skills had a negative correlation of $-.12$ indicating that the least effective teachers agreed more strongly with the concept than the most effective teachers. The other concept with a small effect size dealt with providing education for choosing agricultural occupations. This concept had a correlation of $.11$ indicating that the most effective teachers agreed more strongly with the concept than the least effective teachers. It should also be noted that this concept loaded on factor 6, "vocational agriculture should provide relevant occupational training to enable students to reach occupational goals," which had a positive correlation ($r = .20$).

The fifth factor is, "vocational agriculture should be integrated into the school and community," and is presented in Table 5. The factor means for the most and least effective teachers were positively correlated with a small effect size of $.19$. Two of the six individual concepts also had positive correlations with small effect sizes: vocational agriculture should cultivate and nurture public support at all program levels ($r = .19$); and vocational agriculture should be available for high school youth ($r = .17$). One of the concepts, vocational agriculture should be developed and conducted as part of educational systems, was

Table 5
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Be Integrated Into the School and
Community.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should serve the individual student.	<u>M</u>	5.590	5.533	.06
	<u>SD</u>	.595	.629	
	<u>n</u>	39	30	
Vocational agriculture should serve the business and industry of agriculture.	<u>M</u>	5.132	5.033	.07
	<u>SD</u>	.777	.964	
	<u>n</u>	38	30	
Vocational agriculture should cultivate and nurture public support at all program levels.	<u>M</u>	5.436	5.200	.19
	<u>SD</u>	.640	.887	
	<u>n</u>	39	30	
Vocational agriculture should be developed and conducted as part of educational systems.	<u>M</u>	5.667	5.333	.30
	<u>SD</u>	.577	.802	
	<u>n</u>	39	30	
Vocational agriculture should be in harmony with a total philosophy of education for the individual and society.	<u>M</u>	5.359	5.367	-.01
	<u>SD</u>	.743	.718	
	<u>n</u>	39	30	
Vocational agriculture should be available for youth at the high school level.	<u>M</u>	5.744	5.600	.17
	<u>SD</u>	.498	.563	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	5.487	5.344	.19
	<u>SD</u>	.422	.521	
	<u>n</u>	38	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

positively correlated with teacher effectiveness and had a medium effect size ($\underline{r} = .30$).

Table 6 presents the data for the four philosophical concepts composing the factor, "vocational agriculture should provide relevant occupational training to enable students to reach occupational goals." The factor had a correlation of .20 representing a small effect size. Three of the concepts also had positive correlations over .1. The first two dealt with providing a time commitment of sufficient length and intensity to enable the student to enter the chosen occupation or entrepreneurship ($\underline{r} = .22$) and to advance within the occupation or entrepreneurship ($\underline{r} = .22$). The most effective teachers agreed more strongly with the concepts than did the least effective teachers, and approximately 5% of the variance was explained by group membership. The concept dealing with advisory committees also had a positive correlation representing a small effect size ($\underline{r} = .11$).

The factor, "vocational agriculture should be available for those at the postsecondary and adult levels" composed of two concepts, is presented in Table 7. This factor had a negative correlation coefficient ($\underline{r} = -.09$), which was just under the magnitude suggested by Cohen as the minimum for a small effect size. The concept dealing with providing adult education had a correlation coefficient of $-.10$ which represented a small effect size and indicated the least

Table 6
Means and Correlations of Teacher Agreement With the Philosophical Concepts Composing the Factor: Vocational Agriculture Should Provide Relevant Occupational Training to Enable Students to Reach Occupational Goals.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should provide a time committment of sufficient length and intensity to provide instruction important to the successful entrance of the student into the chosen occupation or entrepreneurship.	<u>M</u>	5.205	4.933	.22
	<u>SD</u>	.570	.944	
	<u>n</u>	39	30	
Vocational agriculture should provide a time committment of sufficient length and intensity to provide instruction important to the successful advancement of the student within the chosen occupation or entrepreneurship.	<u>M</u>	5.077	4.800	.22
	<u>SD</u>	.623	.925	
	<u>n</u>	39	30	
Vocational agriculture should be developed and conducted using an advisory group consisting of individuals representing business and industry in the occupational area in which the program is being offered.	<u>M</u>	5.000	4.833	.11
	<u>SD</u>	.761	1.085	
	<u>n</u>	39	30	
Vocational agriculture should begin by helping the student to define his/her occupational objective.	<u>M</u>	5.128	5.034	.07
	<u>SD</u>	.801	.865	
	<u>n</u>	39	29	
Total factor rating.	<u>M</u>	5.103	4.897	.20
	<u>SD</u>	.509	.757	
	<u>n</u>	39	29	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 7
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Be Available for Those at the Post-
secondary and Adult Levels.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be available for youth at the post-secondary level.	<u>M</u>	5.179	5.267	-.07
	<u>SD</u>	.756	.828	
	<u>n</u>	39	30	
Vocational agriculture should be available for individuals at the adult level.	<u>M</u>	5.103	5.233	-.10
	<u>SD</u>	.788	.953	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	5.141	5.250	-.09
	<u>SD</u>	.734	.858	
	<u>n</u>	39	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

effective teachers agreed more strongly with the importance of teaching adults than did the most effective teachers.

The two concepts composing the factor, "the needs and opportunities of society should be considered when establishing vocational agriculture programs," are presented in Table 8. Although the factor did not have a coefficient with the minimum small effect size of .1, the concept dealing with considering the needs of society when establishing programs did ($r = -.13$). The least effective teachers agreed more strongly with the concept than did the most effective teachers.

The ninth factor, "vocational agriculture should focus on the occupational productivity of people," and the three concepts composing it are presented in Table 9. The factor means were positively correlated with a small effect size ($r = .11$). The only concept within the factor with at least a small effect size was the one dealing with the willingness of people to produce efficiently ($r = .19$). The most effective teachers agreed more strongly with this concept than did the least effective teachers and approximately 4% of the variance could be explained by group membership.

The final factor, "the interests and competencies of individual students should be considered when vocational agriculture programs are established" with two concepts, is presented in Table 10. The factor and both of the concepts had negative correlation coefficients, indicating that the

Table 8
Means and Correlations of Teacher Agreement With the Philosophical Concepts Composing the Factor: The Needs and Opportunities of Society Should Be Considered When Establishing Vocational Agriculture Programs.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should consider the opportunities within society when programs are established.	<u>M</u>	5.179	5.167	.01
	<u>SD</u>	.683	.834	
	<u>n</u>	39	30	
Vocational agriculture should consider the needs of society when programs are established.	<u>M</u>	5.077	5.241	-.13
	<u>SD</u>	.774	.786	
	<u>n</u>	39	29	
Total factor rating.	<u>M</u>	5.128	5.190	-.06
	<u>SD</u>	.695	.687	
	<u>n</u>	39	29	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 9
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: Vocational
Agriculture Should Focus on the Occupational Productivity
of People.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should relate to the productivity of people in terms of competencies in agricultural occupations.	<u>M</u>	5.128	5.133	.00
	<u>SD</u>	.695	.776	
	<u>n</u>	39	30	
Vocational agriculture should relate to the productivity of peo- ple in terms of their attitudes toward occupations.	<u>M</u>	5.205	5.100	.08
	<u>SD</u>	.732	.885	
	<u>n</u>	39	30	
Vocational agriculture should relate to the productivity of peo- ple in terms of their willingness to produce efficiently.	<u>M</u>	5.436	5.200	.19
	<u>SD</u>	.598	.925	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	5.256	5.144	.11
	<u>SD</u>	.590	.709	
	<u>n</u>	39	30	

Note. Means are based on extent of agreement with 1
representing strongly disagree and 6 representing strongly
agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 10
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Composing the Factor: The Interests
and Competencies of Individual Students Should Be Considered
When Vocational Agriculture Programs Are Established.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should consider the interests of the individual student when programs are established.	<u>M</u>	5.103	5.267	-.13
	<u>SD</u>	.821	.785	
	<u>n</u>	39	30	
Vocational agriculture should consider the competencies of the individual student when programs are established.	<u>M</u>	4.820	5.233	-.29
	<u>SD</u>	.914	.817	
	<u>n</u>	39	30	
Total factor rating.	<u>M</u>	4.961	5.250	-.24
	<u>SD</u>	.747	.716	
	<u>n</u>	39	30	

Note. Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

least effective teachers agreed more strongly with the factor and each of the concepts than did the most effective teachers. The factor had a small effect size of $-.24$. The first concept, dealing with considering the interests of the student when establishing programs, also had a small effect size ($r = -.13$). The most important contribution to the variance explained by the factor was contributed by the item dealing with considering the competencies of the student when establishing programs ($r = -.29$). This concept had an effect size close to the medium effect size of $.3$ and group membership was able to explain 8.4% of the variance.

Research Question Number 3: In what ways are beliefs about vocational agriculture held by the teachers identified as the most effective different from the beliefs held by the teachers identified as the least effective?

To address this research question, teachers were given an open-ended question asking them to, "list the strong beliefs you hold about vocational agriculture that you think are important to program quality." A list of belief categories was developed through a series of pilot tests. These categories were then used to analyze the responses of the most effective and the least effective teachers. The instruments from the teachers were randomized and then coded so that the researcher did not know whether the responses being categorized were from the most or least effective teachers. This procedure was used to prevent coding bias on

the part of the researcher. The beliefs stated by the teachers were then tallied by placing them into the appropriate categories. If a teacher specifically mentioned a category, but in a negative way, the response was coded with a "-". The responses for each category were then separated into the most and least effective teacher groups and a percentage of responses for each category was calculated for each group. The calculations were made by totaling the number of times a particular category was mentioned by a group and then dividing by the number of teachers in that group who had returned a survey. The category responses for the most effective teachers were divided by 39 and the category responses for the least effective teachers were divided by 30. The percentages of negative responses for the categories were reported in parentheses.

The results of the content analysis are presented in Table 11. The section titles within the table were for organizational purposes only and were not intended to imply that the items under the title measure a single construct.

The first section included categories of beliefs about teachers. Each of the categories under this section were indicated more frequently by the most effective teachers than by the least effective teachers. The most effective teachers indicated the importance of teacher commitment and competence 38.5% of the time while the least effective

Table 11
 Percentages of Belief Categories Indicated By Teachers as
 Important To Program Quality.

Belief categories by section	Teachers	
	Most ¹	Least ²
	n=39	n=30
<u>Teachers</u>		
Teacher must be committed and competent (willing to work extra hours etc.).	% 38.5	6.7
Teacher must keep technically updated.	% 7.7	0
Teacher must keep professionally active.	% 5.1	0
<u>Students</u>		
Meeting student needs is important.	% 38.5	10.0
Students attracted to the program should be interested and intelligent.	% 2.6	26.7
Program is valuable for all students.	% 2.6 % (2.6)	16.7 (3.3)
<u>Program components</u>		
FFA is important.	% 41.0	16.7
Practical out-of-school job experiences such as SOEP are important.	% 23.1	3.3
Hands on, applied experiences are important in learning.	% 23.1	10.0

Note. Percentages represent the number of teachers expressing a particular belief category divided by the number of teachers in the group. Percentages inside () indicate disagreement with the category.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 11 continued.

Belief categories by section	Teachers	
	Most ¹	Least ²
	n=39	n=30
Personal one-on-one contact with teacher is needed/SOE visits.	% 15.4	3.3
Students should have opportunities to participate in local, state and national activities.	% 10.3	0
Adequate resources must be provided to operate a quality program. (current facilities and equipment, money)	% 10.3	3.3
Year-round program is important.	% 7.7	10.0
Adult, postsecondary and young farmer education are important.	% 7.7	6.7
Contests are an important part of the program.	% 5.1	3.3 (3.3)
Class time must be used effectively.	% 5.1	0
Student discipline must be maintained.	% 2.6	3.3
Student guidance is important.	% 2.6	6.7
Mechanics are important.	% 2.6	10.0
Advisory council is important.	% 2.6	6.7
Updated curriculum materials are important.	% 0	10.0

Note. Percentages represent the number of teachers expressing a particular belief category divided by the number of teachers in the group. Percentages inside () indicate disagreement with the category.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 11 continued.

Belief categories by section	Teachers	
	Most ¹	Least ²
	n=39	n=30
<u>Program goals</u>		
Development of affective skills is important (including leadership, social skills, citizenship training, positive work attitudes, and motivation)	% 46.1	3.3
Training for a variety of agricultural careers should be provided. Subject matter should be diverse and not focused on one narrow career.	% 20.5 % (3.3)	16.7
Specific, focused job training should be provided/entry level skills.	% 17.9 % (2.6)	13.3 (3.3)
Vo ag is valuable as avocational training.	% 7.7 % (3.3)	10.0
Vo ag should change to meet changing needs.	% 7.7	6.7
Vo ag is valuable for providing an application for academic subjects.	% 5.1	0
Development of decision-making skills is important.	% 5.1	0
Curriculum should be based on agriculture in local area.	% 5.1	10.0
Vo ag should focus on production.	% 2.6 % (2.6)	0 (6.7)

Note. Percentages represent the number of teachers expressing a particular belief category divided by the number of teachers in the group. Percentages inside () indicate disagreement with the category.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Table 11 continued.

Belief categories by section	Teachers	
	Most ¹	Least ²
	n=39	n=30
<u>Relationship of program to others</u>		
Support of community/public relations are important.	% 23.1	16.7
Counselor and administrator support are important.	% 15.4	23.3
The agricultural industry and vocational agriculture are important.	% 15.4	13.3
Program coordination between local, state and teacher education is important.	% 10.3	3.3

Note. Percentages represent the number of teachers expressing a particular belief category divided by the number of teachers in the group. Percentages inside () indicate disagreement with the category.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

teachers indicated that category only 6.7% of the time. Keeping technically updated and professionally active were indicated by 7.7% and 5.1% respectively of the most effective teachers, but were not indicated by any of the least effective teachers.

The second section contained categories dealing directly with students. Meeting student needs was indicated by 38.5% of the most effective teachers and by 10% of the least effective teachers. In contrast, the importance of attracting interested and intelligent students was indicated by only 2.6% of the most effective teachers and by 26.7% of the least effective teachers. The final category, focusing on the value of vocational agriculture for all students was indicated by only 2.6% of the most effective teachers, but by 16.7% of the least effective teachers. A small percentage of teachers from the most and least effective groups (2.6% and 3.3% respectively) stated beliefs in specific disagreement with this category.

The third section included categories of beliefs about various program components of vocational agriculture. The category in this section with the most difference between the teacher groups was the importance of the Future Farmers of America (FFA). Over 40% of the most effective teachers (41.0%) stated a belief that fit into this category, compared to 16.7% of the least effective teachers. The other categories indicated more often by the most effective

teachers and with more than 10 percentage points difference between the teacher groups were: the importance of out-of-school job experiences (23.1% to 3.3%); the importance of hands-on, applied experiences in learning (23.1% to 10.0%); the importance of personal contact with the teacher (15.4% to 3.3%); and the importance of providing opportunities for students to participate in local, state and national activities (10.3% to 0%). A higher percentage of the most effective teachers indicated the importance of adequate resources (10.3% to 3.3%) and the importance of effective use of class time (5.1% to 0%).

The category in this section indicated more often by the least effective teachers with the greatest difference between the groups was the importance of updated curriculum materials (0% to 10.0%). Other categories indicated more often by the least effective teachers included the importance of student guidance (2.6% to 6.7%), the importance of mechanics (2.6% to 10%), and the importance of the advisory council (2.6% to 6.7%). The categories that dealt with importance of a year-round program, the importance of providing adult, postsecondary and young farmer education, and the importance of contests were indicated similarly by both groups although 3.3% of the least effective teachers did think contests should be deemphasized.

The fourth section lists categories with beliefs about program goals. The category with the most difference between the groups fell in this section. The importance of affective skill development such as leadership, social skills, motivation and positive work attitudes was indicated by 46.1% of the most effective teachers compared to only 3.3% of the least effective teachers. None of the other categories in this section had differences between the groups of over 6%. The most effective teacher group indicated the importance of providing training for a variety of careers (20.5% to 16.7%) as well as the importance of providing specific, focused job training (17.9% to 13.3%) slightly more often than did the least effective teacher group. The most effective teachers also indicated the value of vocational agriculture for providing applications of academic subjects (5.1% to 0%) and the importance of the development of decision-making skills (5.1% to 0%) more often than the least effective teachers.

The least effective teachers indicated the importance of basing the curriculum on agriculture in the local area (5.1% to 10.0%) slightly more often than did the most effective teachers. The least effective teachers also disagreed with the category that vocational agriculture should focus on production more often than did the most effective teachers (2.6% to 6.7%). The categories that vocational agriculture is valuable for avocational training

(7.7% to 10%), and that vocational agriculture should change to meet changing needs (7.7% to 6.7%) was indicated by about the same frequency by both groups.

The categories in the final section focus on the relationship of vocational agriculture to others. No category had a difference between the groups of over 10 percentage points. The most effective teachers indicated the importance of community support and of public relations 23.1% of the time compared to 16.7% for the least effective teachers. The most effective teachers also indicated the importance of coordination between local, state and teacher education programs more often than did the least effective teachers (10.3% to 3.3%).

The least effective teachers mentioned the importance of counselor and administrator support more often than did the most effective teachers (15.4% to 23.3%). The category emphasizing the importance of the agricultural industry and vocational agriculture was indicated by both groups with about the same frequency (15.4% to 13.3%).

Research question number 4: What is the relationship between teacher effectiveness and selected demographic variables?

The relationships of the demographic variables and membership in the most and least effective teacher groups are presented in Table 12. A biserial correlation coefficient was calculated for the first four demographic

Table 12
Demographic Variables and Comparisons With Teacher
Effectiveness.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Highest educational level obtained	<u>M</u>	3.56 ³	2.31	.45
	<u>SD</u>	1.74	1.51	
	<u>n</u>	39	29	
Age	<u>M</u>	37.18	34.86	.16
	<u>SD</u>	8.88	8.95	
	<u>n</u>	39	29	
Total years of teaching vocational agriculture	<u>M</u>	13.90	10.50	.26
	<u>SD</u>	7.87	8.16	
	<u>n</u>	39	30	
Years in present position	<u>M</u>	11.18	8.80	.22
	<u>SD</u>	6.75	6.85	
	<u>n</u>	39	30	
Level of students taught:				
Junior High	<u>n</u>	7	10	
	<u>%⁴</u>	17.9	33.3	
Senior High	<u>n</u>	22	8	
	<u>%</u>	56.4	26.7	
Junior & Senior High	<u>n</u>	10	12	
	<u>%</u>	25.6	40.0	

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

³1 = bachelor; 2 = bachelor + 15; 3 = bachelor + 30;

4 = master's; 5 = master's + 15; 6 = master's + 30;

7 = more than master's + 30. ⁴Percentage within each teacher group.

variables. The variable of whether the teacher taught junior high, senior high or both was analyzed using frequencies.

The demographic variable with the highest effect size was the educational level of the teachers. The most effective teachers tended to have more education than did the least effective teachers ($r = .45$). This effect size was in the top part of the medium range as recommended by Cohen (1969) and indicates that group membership could explain approximately 20% of the variance in the educational level variable. Age ($r = .16$), total years of teaching vocational agriculture ($r = .26$), and years in present position ($r = .22$) all had small effect sizes. The more effective teachers tended to be older, have more total years of teaching experience, and have longer tenure in their present position than the least effective teachers.

The level of students taught was also different for the two teacher groups. The majority of the most effective teachers taught senior high school (56.4%) with 25.6% teaching both junior high and senior high and 17.9% teaching only junior high. The largest percentage of the least effective teachers taught both junior high and senior high (40%), with 33.3% teaching only junior high and 26.7% teaching only senior high.

Research question number 5: What is the relationship between selected demographic variables and teacher agreement

with the philosophical statement adopted by the Agricultural Education Division, AVA?

The final research question used data from the responses of the general population of agricultural teachers in Virginia which included the most and least effective teachers. The mean ratings of these responses indicated agreement with the philosophy adopted by the agricultural education profession. The mean rating for the overall extent of agreement with the philosophy statement was 5.16 and the mean ratings for each of the concepts within the philosophy ranged from 4.65 for the concept addressing retraining to 5.60 for the concept addressing providing vocational agriculture for high school youth.

Table 13 presents the relationship of each demographic variable and agreement with the overall philosophy adopted by the profession. Agreement with the overall philosophy for each respondent was determined by summing and averaging the respondent's ratings for each of the concepts. A Pearson correlation coefficient was calculated for each of the first four demographic variables and strength of agreement with the overall philosophy.

All of the correlations were below .1 which is the minimum effect size recommended by Cohen (1969) and indicated that none or almost none of the variance in agreement could be explained by the demographic variables. The differences in agreement with the philosophy among

Table 13
 Comparisons of Teacher Agreement With the Philosophy
 Adopted By the Profession and the Demographic Variables.

Demographic Variables		Agreement With Philosophy ¹
Highest educational level obtained	$\frac{r}{n}$.04 259
Age	$\frac{r}{n}$	-.02 261
Total years of teaching vocational agriculture	$\frac{r}{n}$.01 261
Years in present position	$\frac{r}{n}$	-.02 261
Level of students taught:		
Junior High	$\frac{M^2}{SD}$ $\frac{n}{n}$	5.097 .511 54
Senior High	$\frac{M}{SD}$ $\frac{n}{n}$	5.177 .402 116
Junior & Senior High	$\frac{M}{SD}$ $\frac{n}{n}$	5.168 .378 89

¹Agreement with philosophy = overall extent of agreement with the philosophy adopted by the profession.

²Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

teachers in junior high, senior high, and both junior and senior high were also negligible with only .08 difference between the highest and lowest means.

Means ratings for selected philosophical concepts and the variable of level of students taught are presented in Appendix J. Correlations between agreement with selected philosophical concepts and the demographic variables of educational level, age, total years of teaching, and years teaching in present position are presented in Appendix K.

CHAPTER 5

Summary, Conclusions, Recommendations and Discussion

Summary

The Problem

Teacher educators in agricultural education have traditionally emphasized programs that will maximize the effectiveness of agricultural teachers. Much of the contemporary effort to accomplish this goal has focused on the competency-based approach in which the competencies needed by those teachers have been identified and incorporated into the teacher education curriculum. A review of literature has indicated, however, that the competency approach by itself is not sufficient and that there are other factors such as teacher beliefs that are related to teacher effectiveness. Very little research has been conducted on the beliefs of agricultural teachers and what relationship those beliefs have to teacher effectiveness. While the agricultural education profession has adopted an official statement of beliefs, no research has been found that has investigated whether teachers accept those beliefs and whether those beliefs are correlated with teacher effectiveness.

Purpose of the Study

The purpose of this research was to investigate the relationship between teacher effectiveness and agreement with the philosophy and key concepts adopted by the Agricultural Education Division of the AVA. The study also investigated the strong beliefs about quality vocational agriculture programs held by the most and the least effective teachers, investigated the relationship between selected demographic variables and teacher effectiveness, and investigated the relationship between selected demographic variables and teacher agreement with the philosophy adopted by the Agricultural Education Division of the AVA.

Research Questions

Specific research questions were:

1. What is the relationship between teacher effectiveness and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?

2. What is the relationship between teacher effectiveness and teacher agreement with each of the key concepts adopted by the Agricultural Education Division, AVA?

3. In what ways are beliefs about vocational agriculture held by the teachers identified as the most

effective different from the beliefs held by the teachers identified as the least effective?

4. What is the relationship between teacher effectiveness and selected demographic variables?

5. What is the relationship between selected demographic variables and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?

Procedure

The primary subjects for this study were agricultural teachers in Virginia identified by state supervisors of vocational agriculture and verified by selected teacher educators in agricultural education as the most and least effective agricultural teachers. The selection and verification process resulted in 40 teachers for the most effective group and 33 teachers for the least effective group. Of these, 39 of the most effective teachers returned surveys for a response rate of 97.5% and 30 of the least effective teachers returned surveys for a response rate of 90.9%. In addition, the general population of 368 agricultural teachers in Virginia was used to investigate the relationship between selected demographic variables and agreement with the philosophical concepts. Of the 368 teachers, 285 returned instruments for a response rate of 77.4%.

Teachers were asked to complete an instrument consisting of three parts. The first part was an open-ended question asking teachers to list the strong beliefs they held about agricultural education that they thought were important to program quality. A classical content analysis was conducted to analyze the responses to the open-ended question. Several pilot tests were conducted using the beliefs expressed by samples of the most and least effective teachers to develop categories of beliefs. These categories were then used to count and classify the beliefs expressed by all teachers identified as most or least effective. The percentages of teachers from each group who indicated each of the categories were calculated from the frequencies and those percentages were used to compare the groups in answering research question number 3.

The second part of the instrument consisted of a list of items representing the philosophical concepts adopted by the agricultural education profession. The teachers were asked to rate the concepts on a 1 to 6 Likert-type scale with 1 representing "strongly disagree," 2 representing "disagree," 3 representing "tend to disagree," 4 representing "tend to agree," 5 representing "agree," and 6 representing "strongly agree."

To address research question number 1, the overall agreement of each respondent with the philosophy adopted by the profession was determined by summing and averaging each

respondent's ratings of the concepts making up the philosophy. Means, standard deviations, and correlation coefficients of the overall agreement were then calculated to compare the most and least effective teacher groups.

Means, standard deviations and correlation coefficients were also calculated for the teacher groups on each of the concepts and factors to answer research question number 2. The factors were created by factor analyzing responses received from the general population of agricultural teachers in Virginia to facilitate grouping the philosophical concepts for discussion. The initial extraction resulted in 10 factors with eigenvalues of one or greater which were then rotated using the Varimax rotation method (SPSS, 1983). All of the concepts loaded on at least one factor with a loading of .3 or greater. Concepts with more than one loading were placed with the factor on which the concept had the highest loading. Factor ratings were then calculated by summing and averaging the respondent ratings of the concepts composing each factor.

The third part of the instrument asked questions about selected demographic characteristics of the teachers. Means, standard deviations and correlation coefficients were calculated to compare the most and least effective teachers on the four demographic variables of educational level, age, total years of teaching experience, and years in current position. Frequencies were calculated to compare the groups

on the final demographic variable, level of students taught. These data were used to answer research question number 4.

Research question number 5 was addressed by using the demographic data from the general population of agricultural teachers in Virginia and comparing each of the demographic variables to agreement with the philosophy of the profession. The analysis was done by calculating correlation coefficients and comparing means.

Findings

Research question number 1

What is the relationship between teacher effectiveness and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?

The most effective teachers and the least effective teachers indicated that they agreed with the philosophy with mean ratings of 5.279 and 5.190 respectively. A positive correlation coefficient of .14 indicated that the most effective teachers agreed more strongly with the philosophy than the least effective teachers, but that the effect size was small.

Research question number 2

What is the relationship between teacher effectiveness and teacher agreement with each of the key concepts adopted by the Agricultural Education Division, AVA?

Ratings by both the most effective and least effective teachers indicated agreement with all of the concepts representing the philosophy of the profession. The ratings ranged from means of 4.72 to 5.77. The most effective teachers had mean ratings below 5.0 for three concepts and mean ratings for four concepts above 5.5. The least effective teachers had mean ratings for five concepts under 5.0 and mean ratings for three concepts above 5.5. The largest correlations between group membership and strength of agreement were for the concepts vocational agriculture should: (a) be developed and conducted as part of educational systems ($\underline{r} = .30$); (b) be unique in its instructor qualifications ($\underline{r} = .23$); (c) be unique in its student goals ($\underline{r} = .23$); (d) be responsive to the needs of the individual for the skills of citizenship ($\underline{r} = .22$); (e) provide a time commitment of sufficient length and intensity to provide instruction important to the successful entrance of the student into the chosen occupation or entrepreneurship ($\underline{r} = .22$); (f) provide a time commitment of sufficient length and intensity to provide instruction important to the successful advancement of the student within the chosen occupation or entrepreneurship ($\underline{r} = .22$); (g) relate to the productivity of people in terms of their willingness to produce efficiently ($\underline{r} = .19$); (h) cultivate and nurture public support at all program levels ($\underline{r} = .19$); (i) be available for youth at the high school level ($\underline{r} =$

.17); (j) be unique in its facility and equipment needs ($\underline{r} = .16$); (k) consider the competencies of the individual when programs are established ($\underline{r} = -.29$); and (l) balance the quantity of programs with employment patterns ($\underline{r} = -.14$). The most effective teachers rated the first 10 concepts higher than did the least effective teachers, while the final two concepts were rated higher by the least effective teachers. All but one of the correlation coefficients represented a small effect size meaning that the amount of variance for each of the concepts that could be explained by group membership was between one and nine percent. The concept that vocational agriculture should be developed and conducted as part of educational systems had a medium effect size of .30.

The means of the factors created by the factor analysis were also used to compare the most and least effective teachers. Five of the factors had positive correlation coefficients representing a small effect size. Two factors had negative correlation coefficients representing a small effect size, and three factors had correlation coefficients representing effect sizes of less than .1. The five factors with positive correlation coefficients of .1 or greater indicating higher mean ratings by the most effective teacher group were: vocational agriculture should be a unique educational program ($\underline{r} = .20$); vocational agriculture should provide relevant occupational training to enable students to

reach occupational goals ($\underline{r} = .20$); vocational agriculture should be integrated into the school and community ($\underline{r} = .19$); vocational agriculture should respond to individual needs for nonoccupation-specific training ($\underline{r} = .11$); and vocational agriculture should focus on the occupational productivity of people ($\underline{r} = .11$). The two factors with negative correlation coefficients of $-.1$ or greater indicating higher mean ratings by the least effective teachers were: the interests and competencies of individual students should be considered when vocational agriculture programs are established ($\underline{r} = -.24$); and vocational agriculture should prepare individuals for jobs existing in industry ($\underline{r} = -.13$). The three factors with correlation coefficients between $-.09$ and $.09$ were: vocational agriculture should provide education to allow people to change occupations ($\underline{r} = -.01$); vocational agriculture should be available for those at the postsecondary and adult levels ($\underline{r} = -.09$); and the needs and opportunities of society should be considered when establishing vocational agriculture programs ($\underline{r} = -.06$).

Research question number 3

In what ways are beliefs about vocational agriculture held by the teachers identified as the most effective different from the beliefs held by the teachers identified as the least effective?

Of the 34 categories of beliefs identified by the content analysis, 11 showed differences of 10 percentage points or more between the groups. Eight of those categories were indicated more often by the most effective teachers while three were indicated more often by the least effective teachers. The category with the largest difference between the groups was the importance of the development of affective skills. About 46% of the most effective teachers indicated that category compared to only 3.3% of the least effective teachers. Other categories indicated substantially more often (20 percentage point difference or more) by the most effective teachers included: teacher must be committed and competent (38.5% to 6.7%); meeting student needs is important (38.5% to 10.0%); FFA is important (41.0% to 16.7%); and practical out-of-school job experiences are important (23.1% to 3.3%). Categories indicated more often by the most effective teachers with over a 10 but less than 20 percentage point difference between the groups included: hands-on, applied experiences are important in learning (23.1% to 10.0%); personal one-on-one contact with the teacher is needed (15.4% to 3.3%); and students should have opportunities to participate in local, state and national activities (10.3% to 0%).

The categories with the greatest differences indicated most often by the least effective teachers were, students attracted to the program must be interested and intelligent

(2.6% to 26.7%); program is valuable for all students (2.6% to 16.7%); and updated curriculum materials are important (0% to 10%). Categories mentioned by over 15% of at least one group, but with less than a 10 percentage point difference between groups included: training for a variety of agricultural careers should be provided--subject matter should be diverse and not focused on one narrow career (20.5% to 16.7%); specific, focused job training should be provided (17.9% to 13.3%); support of community/public relations are important (23.1% to 16.7%); counselor and administrator support are important (15.4% to 23.3%); and the agricultural industry and vocational agriculture are important (15.4% to 13.3%).

Research question number 4

What is the relationship between teacher effectiveness and selected demographic variables?

A positive correlation coefficient was found between teacher effectiveness and each of the demographic variables. The highest correlation was with educational level ($r = .45$) with the most effective teacher group having more education than the least effective teacher group. Total years teaching experience had the next highest correlation coefficient ($r = .26$) followed by years in present position ($r = .22$) and age ($r = .16$). Educational level had a medium effect size and the other three variables had a small effect

size. A higher percentage of the most effective teachers taught senior high only (56.4% to 26.7%) while higher percentages of the least effective teachers taught junior and senior high (25.6% to 40.0%), and junior high only (17.9% to 33.3%).

Research question number 5

What is the relationship between selected demographic variables and teacher agreement with the philosophical statement adopted by the Agricultural Education Division, AVA?

Correlation coefficients calculated between each of the demographic variables of educational level, age, total years of teaching experience, and years in current position with overall agreement with the philosophy of the profession indicated that none or almost none of the variance in agreement could be explained by the demographic variables. The differences in agreement with the philosophy among teachers in junior high, senior high, and both junior and senior high were also negligible with only .08 difference between the highest and lowest means.

Conclusions

The analysis and interpretation of the findings in this study support the following conclusions.

1. The philosophy adopted by the Agricultural Education Division, AVA does not contain the beliefs most likely to

distinguish between the most and least effective teachers.

2. There are beliefs not included in the philosophy adopted by the profession that do seem to be related to teacher effectiveness.

3. The most effective teachers are more likely to express beliefs about the teacher being the key to effective programs while the least effective teachers are more likely to express beliefs about external factors being the key to effective programs.

4. Additional education is a better predictor of teacher effectiveness than either age, experience or agreement with any of the specific concepts adopted by the profession.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are made.

1. Research is needed to determine what other beliefs are held by vocational agriculture teachers and how those beliefs are related to teacher effectiveness.

2. Research is needed to determine what factors other than beliefs are related to teacher effectiveness.

3. Research is needed to determine if there are differences in the way most and least effective teachers implement their beliefs.

4. Research is needed to determine how education contributes to teacher effectiveness and influences teacher beliefs.

5. The philosophy of the profession should emphasize that effective agricultural programs depend on the teacher taking personal responsibility for and being committed to those programs.

6. Longitudinal research is needed to determine what beliefs students have just before entering teaching, whether those beliefs can be used to predict long-term success, and how those beliefs change over time.

7. Research is needed to determine if beliefs stated or written by teachers can be reliably discovered through actual observation.

Discussion

This research suggests that while teacher beliefs do have some impact on teacher effectiveness, much of the difference among teachers is caused by factors other than the beliefs investigated in this study. The philosophy adopted by the profession was accepted by all of the teachers regardless of whether they were identified as the most or least effective teachers and specific parts of that philosophy only explained small amounts of the variance between the most and least effective teachers. The beliefs that were the subject of many of the specific philosophical

debates identified in the research and literature such as job specific training versus more generalized career preparation did emerge in the beliefs expressed by the teachers, but did not seem to distinguish clearly between the most and least effective teachers. This does not mean that the beliefs of the profession are not important to effective teaching. The fact that all of the teachers seemed to agree with the philosophy indicate otherwise. It simply means that agreeing with the philosophy adopted by the profession is not sufficient in and of itself to ensure teacher effectiveness.

The results of this research did suggest that there are other beliefs that are held differentially by the most and least effective teachers. The most effective teachers expressed more beliefs focusing on the teacher as the key to program success and also on specific tools the teacher could use to bring about that success. The least effective teachers expressed more beliefs focusing on factors beyond the control of the teacher as most important to program success. These results would suggest that teacher education programs need to stress the importance and responsibility of the teacher in effective teaching. However, not even the personal beliefs expressed explained a majority of the variance between the most and least effective teachers. It could be that the least effective teachers know what they should believe, but are simply unable to implement those

beliefs in an effective and meaningful way. It also could be that the least effective teachers focus on beliefs about the importance of factors outside of their control because they do not have the skills to operationalize those factors within their control.

More research not only needs to be conducted on the beliefs that are actually controlling and motivating teacher actions, but also on the ability of those teachers to implement the beliefs that they hold.

The relationship of additional education to more effective teaching was supported by this research, but the specifics of that relationship are still a mystery. Perhaps if teacher educators could discover exactly what beliefs and skills are essential to effective teaching, the relationship between educational level and teacher effectiveness would be much stronger.

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APPENDIX A

The Philosophy of Vocational Agricultural
Education Adopted by the Agricultural
Education Division, AVA

Appendix A
The Philosophy of Vocational Agricultural Education Adopted
by the Agricultural Education Division, AVA in 1976.

**The
Philosophy of
Vocational
Agricultural
Education**

Preface

Agriculture is a basic industry. The well-being of our society and the economy of the United States require a productive and efficient agriculture. The increasing scientific and technological nature of the total agricultural complex, the continuing and expanding demand for food and fiber, and the mounting pressure on the renewable natural resources in our environment dictate the need for specifically educated and highly skilled entrepreneurs and employees.

Vocational agricultural education is a program founded upon a sound philosophical base. This base embraces the importance of the relationship of knowledge taught to its effective use and application. With this base upon which to build, the program has relevance, stability, and a sense of direction.

The philosophy reflects the fundamental purposes of vocational agricultural education and its place in the social, economic, and educational environments. Specifically, the philosophy addresses two fundamental questions:

- ① Why vocational agricultural education in lieu of or in conjunction with other educational concepts?
- ② What is the role of vocational agricultural education in meeting current and projected social, economic, and individual needs?

The vocational agricultural education program is a core-type curriculum aimed at preparing individuals for entrepreneurship or employment. In the philosophical foundation for vocational agricultural education, leadership emanates from the states of the nation. As a result, the vocational agricultural education delivery system possesses a set of standard characteristics to assist state educational agencies and local educational agencies fulfill their re-

spective leadership roles in program development, implementation, and administration.

Vocational agricultural education is a service effort for the individual and the business and industry of agriculture. Constituency support is cultivated and nurtured at all program levels so vocational agricultural education will prosper and grow. Close relationships are developed and maintained with persons who need vocational agricultural education and agencies that employ those people to insure current and relevant program content and skill development.

Key Concepts

The philosophy of vocational agricultural education provides the general explanation for the program. This general rationale is the base from which the program is developed.

The development of a program of vocational agricultural education requires a series of standard concepts that provide stability and direction and which are compatible with the philosophical foundation. These concepts, which are listed below, serve as a unifying force which makes vocational agricultural education a singular program in the educational system of the nation.

- ① Vocational agricultural education programs are developed and conducted as a part of educational systems and are in harmony with a total philosophy of education for the individual and the society.
- ② The changes within the agricultural sector of our technological society require that the major efforts of vocational agricultural education focus upon preparing individuals for work and for entrance into the work force or entrepreneurship.
- ③ Vocational agricultural education programs relate to the productivity of people in terms of competencies in agricultural occupations, attitudes toward the occupations, and a willingness to produce efficiently.
- ④ When vocational agricultural education programs are established, the opportunities within society and the needs of society will be considered as well as the interests and competencies of the individual.

Appendix A continued.

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- The quantity of vocational agricultural education programs will be in keeping with employment patterns at the local, state, and national levels—in that order.
 - Vocational agricultural education, rather than being classified as a discipline within the educational system, is a unique and identifiable program which combines the skills and technical content of various disciplines with the practical requirements of the world of work to prepare a person to succeed technically and socially.
 - The vocational agricultural education program is unique in its requirements for community resource utilization, facility and equipment needs for instruction, curriculum, instructor qualifications, and student goals.
 - To assure quality, vocational agricultural education programs are responsive to the needs of the individual for job-entry skills and the compatible skills of communication, citizenship and leadership, decision-making, positive attitude towards learning, and personal and occupational responsibility.
 - Vocational agricultural education programs possess a time commitment of sufficient length and intensity to provide instruction important to the successful entrance of the student into and advancement within the chosen occupation or entrepreneurship.
 - Vocational agricultural education programs are developed and conducted with individuals representing business and industry in the occupational area in which the program is being offered serving in an advisory capacity.
 - Vocational agricultural education is a part of the career development continuum which includes:
 - ③ Education for choice of an agricultural occupation through career motivation, career orientation, and career exploration.
 - ④ Education for entrepreneurship or employment—vocational agricultural education.
 - ⑤ Education for upgrading and retraining—vocational agricultural education.
 - Vocational agricultural education begins by defining occupational objectives and providing preparation for a job in agriculture. It ends with individuals successfully entering entrepreneurship or jobs in agriculture. These individuals will have capacities to continue to learn and transfer personal and occupational skills to meet the changing job requirements of the agricultural sector in a technological society.
 - Vocational agricultural education programs are available for youth at both the high school and post-high school levels, and for adults throughout their working life.
 - All instructional, supervisory, administrative, and teacher education personnel in vocational agricultural education at the state and local levels shall be competent, with expertise in the field for which they are responsible.

APPENDIX B

Criteria Agreed Upon By State Supervisors For
Selecting Most and Least Effective Teachers

Appendix B
 Criteria Agreed Upon By State Supervisors For Selecting
 Most¹ and Least² Effective Teachers.

Instructional program

Teaching calendar is relevant to the option area and the agricultural industry, particularly that of the local community

Instructional material is current

Curriculum is organized according to competency-based approach

Students are involved, interested and are under control while classes are in session

Teacher uses a variety of teaching methods

FFA activities are tied to instructional program

Teacher attempts to keep facility and program up-to-date

Teacher provides positive feedback to students in class

Laboratory/shop is kept in order

Department has an active FFA chapter with participation of members on state and local level, participation in contests appropriate to teaching content, well rounded program of activities with active community involvement, maximum involvement of members, and attendance at area and state meetings

Students are involved in quality supervised occupational experience programs

An adult program is in place that is meeting the needs of the adults in the community

¹Most effective teachers were those most nearly meeting the criteria listed. ²Least effective teachers were those furthest from meeting the criteria listed.

Appendix B continued.

Teacher Characteristics

Teacher shows a positive regard to suggestions of improvement

Teacher is able to get along with administrators and other teachers

Teacher is cooperative in getting reports submitted, etc.

Teacher is active in the professional organization

Teacher demonstrates an adequate knowledge of the subject matter

Teacher pays attention to student needs

Program Variables

Students who complete the program are successful

Student's follow-up recommendations are positive

Program has met the standards for vocational agriculture

APPENDIX C

Instrument on Beliefs About Vocational Agriculture

Part 2

Indicate your agreement with each of the following statements about vocational agriculture by circling a number from 1 (strongly disagree) to 6 (strongly agree).

1 Strongly Disagree	2 Disagree	3 Tend to Disagree	4 Tend To Agree	5 Agree	6 Strongly Agree
---------------------------	---------------	--------------------------	-----------------------	------------	------------------------

Vocational agriculture should:

- | | | | |
|-------------|---|-------------|--|
| 1 2 3 4 5 6 | serve the individual student. | 1 2 3 4 5 6 | be responsive to the needs of the individual for the skills of citizenship. |
| 1 2 3 4 5 6 | serve the business and industry of agriculture. | 1 2 3 4 5 6 | be responsive to the needs of the individual for the skills of leadership. |
| 1 2 3 4 5 6 | cultivate and nurture public support at all program levels. | 1 2 3 4 5 6 | be responsive to the needs of the individual for the skills of decision-making. |
| 1 2 3 4 5 6 | be developed and conducted as part of educational systems. | 1 2 3 4 5 6 | be responsive to the needs of the individual for developing a positive attitude towards learning. |
| 1 2 3 4 5 6 | be in harmony with a total philosophy of education for the individual and society. | 1 2 3 4 5 6 | be responsive to the needs of the individual for developing personal responsibility. |
| 1 2 3 4 5 6 | focus on preparing individuals for work. | 1 2 3 4 5 6 | be responsive to the needs of the individual for developing occupational responsibility. |
| 1 2 3 4 5 6 | focus on preparing individuals for entrance into the work force or entrepreneurship. | 1 2 3 4 5 6 | provide a time commitment of sufficient length and intensity to provide instruction important to the successful entrance of the student into the chosen occupation or entrepreneurship. |
| 1 2 3 4 5 6 | relate to the productivity of people in terms of competencies in agricultural occupations. | 1 2 3 4 5 6 | provide a time commitment of sufficient length and intensity to provide instruction important to the successful advancement of the student within the chosen occupation or entrepreneurship. |
| 1 2 3 4 5 6 | relate to the productivity of people in terms of their attitudes toward occupations. | 1 2 3 4 5 6 | be developed and conducted using an advisory group consisting of individuals representing business and industry in the occupational area in which the program is being offered. |
| 1 2 3 4 5 6 | relate to the productivity of people in terms of their willingness to produce efficiently. | 1 2 3 4 5 6 | provide education for choice of an agricultural occupation through career motivation, career orientation, and career exploration. |
| 1 2 3 4 5 6 | consider the opportunities within society when programs are established. | 1 2 3 4 5 6 | provide education for upgrading. |
| 1 2 3 4 5 6 | consider the needs of society when programs are established. | 1 2 3 4 5 6 | provide education for retraining. |
| 1 2 3 4 5 6 | consider the interests of the individual student when programs are established. | 1 2 3 4 5 6 | begin by helping the student to define his/her occupational objective. |
| 1 2 3 4 5 6 | consider the competencies of the individual student when programs are established. | 1 2 3 4 5 6 | provide individuals with the capacities to continue to learn and transfer their skills to meet the changing job requirements of the agricultural sector. |
| 1 2 3 4 5 6 | balance the quantity of programs with employment patterns at the local, state, and national levels -- in that order. | 1 2 3 4 5 6 | be available for youth at the high school level. |
| 1 2 3 4 5 6 | be a unique and identifiable program which combines the skills and technical content of various disciplines with the practical requirements of the world of work, rather than as a discipline itself. | 1 2 3 4 5 6 | be available for youth at the post-secondary level. |
| 1 2 3 4 5 6 | be unique in its utilization of community resources. | 1 2 3 4 5 6 | be available for individuals at the adult level. |
| 1 2 3 4 5 6 | be unique in its facility and equipment needs for instruction. | 1 2 3 4 5 6 | employ competent personnel at all levels who have expertise in the field for which they are responsible. |
| 1 2 3 4 5 6 | be unique in its curriculum. | | |
| 1 2 3 4 5 6 | be unique in its instructor qualifications. | | |
| 1 2 3 4 5 6 | be unique in its student goals. | | |
| 1 2 3 4 5 6 | be responsive to the needs of the individual for the skills of communication. | | |

PLEASE COMPLETE OTHER SIDE



APPENDIX D

Initial Cover Letter for Instrument



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DIVISION OF VOCATIONAL & TECHNICAL EDUCATION

May 18, 1984

Dear Vocational Agriculture Teacher,

We know you are busy, but we need your help. Your assistance will give yourself a chance to win a computer and at the same time help to improve vocational agriculture in Virginia.

We need to know what you believe about vocational agriculture. Voc ag has gone through many changes and it is important to know exactly what is and is not important to teachers who are responsible for implementing the program.

The enclosed survey will provide data needed to complete a study on what ag teachers believe about vocational agriculture. The survey has two parts: a place to list your strong beliefs about vocational agriculture; and a series of statements for you to react to about vocational agriculture.

Surveys are coded to facilitate follow-up and to facilitate giving away the computer. Individual names will never be matched to the questionnaires and all returns will be held in strictest confidence.

Once again, we do need your input. The nature of this particular study requires virtually a 100% return. We also need your response as close to May 25th as possible. To thank you for your effort, we will put your name in the hat for a Timex 1000 Personal Computer with a 16K expansion adapter plus software. The name will be drawn during a General Session of the Agricultural Teacher's Conference this summer, although you do not need to be present to win.

Thanks for your help!

Sincerely,

Mike Rush
Instructor
Agricultural Education
Virginia Tech

John Crunkilton
Professor
Agricultural Education
Virginia Tech

APPENDIX E

Follow-up Postcard Reminder

Dear Vocational Agriculture Instructor:

Just a reminder to let you know how important your response is to the success of our study on beliefs about vocational agriculture. If you need another survey, please give us a call at (703) 961-6836.

Once again, we appreciate your support and assistance.

Sincerely,

Mike Rush
Instructor
Agricultural Education
Virginia Tech
Blacksburg, VA 24061

John Crunkilton
Professor
Agricultural Education
Virginia Tech
Blacksburg, VA 24061

APPENDIX F

Second Cover Letter for Instrument

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DIVISION OF VOCATIONAL & TECHNICAL EDUCATION

June 1, 1984

Dear Vocational Agriculture Teacher:

Please take a few minutes and fill out the enclosed survey.

"That darn Rush! Doesn't he know this is a busy time and I have enough paper work to do without filling out questionnaires?"

If this is your reaction (or even if it isn't), please believe me that I do know you are a busy person. That is part of the reason your response is so essential to the success of this study. You are the only source of information for the data we need.

We need to know what you, as a vo ag instructor, believe about vocational agriculture. We hope the findings will help us discover what beliefs are really central to quality vocational programs which in turn can help us tailor our teacher education program to focus on those beliefs.



If you need another reason to fill out the survey, try one of these.

- It gives you a chance to win a Timex 1000 personal computer.
- It gives you an opportunity to evaluate your own beliefs about vo ag.
- You need a break from thinking about how you are going to get everything done before the summer starts.
- Your mother always taught you to be a kind person.

Your response is needed! Thanks!

Sincerely,

Mike Rush
Instructor
Virginia Tech

John Crunkilton
Professor
Virginia Tech

P.S. If you have already sent your survey, thanks.

APPENDIX G
Summary of the Responses of the Most and
Least Effective Teachers to the Question
on Strong Beliefs Held About Vocational
Agriculture That Did Not Fit Into the
Belief Categories

Appendix G
Summary of Responses of the Most and Least Effective Teachers
To the Question on Strong Beliefs Held About Vocational
Agriculture That Did Not Fit Into the Belief Categories

Most Effective Teachers

Training to participate in agriculture

Mastering basic skills

Don't lower program standards to maintain enrollment

Students aren't interested in agriculture, are weak
academically and want shop experiences

Future Farmers of America has little appeal to most of my
students

Following directions, plans, blueprints, etc.

Prepared to work daily

Involve all students in class activities

Class should have more shop and less academics

State Area Supervisors need funding clout--Attendance at
area meetings is less

Been on CBE for some time, especially in mechanics

Close cooperation among chapter advisors--each carrying
share of load

Match student interests to needs of society

Provides skills

Includes classroom and lab instruction

Agriculture teachers are being asked to do too much taking
away from family and leisure time

Involves knowledge portion of learning

Develop good work habits regardless of occupation

Appendix G continued.

Least Effective Teachers

More unity and right to bargain

Maintain high standards

Can't think of any

Don't understand question

University must work harder in obtaining better students

Better organization of vocational agriculture teachers' organization

Produce tax-paying citizen

Increase industry and business opportunities in America and foreign countries

Students must decide on what they can do instead of what they want to do

Gives students a chance they wouldn't otherwise receive

Teachers should have two hour planning period

Continue to improve vocational agriculture through survey and research

Instructors need other outlets

Focus on principles of intellect--manifest and comprehend situations in a professional way

Program planning--short and long term

Program should be pre-vocational

Class size needs to be as small as possible

APPENDIX H

Means and Correlations of Teacher Agreement With
the Philosophical Concepts Adopted by the Agricultural
Education Profession, Listed in Order of
Strength of Agreement By the Most Effective Teachers

Appendix H
Means and Correlations of Teacher Agreement With the
Philosophical Concepts Adopted by the Agricultural Education
Profession, Listed in Order of Strength of Agreement By the
Most Effective Teachers.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be available for youth at the high school level.	<u>M</u>	5.744	5.600	.17
	<u>SD</u>	.498	.563	
	<u>n</u>	39	30	
Vocational agriculture should employ competent personnel at all levels who have expertise in the field for which they are responsible.	<u>M</u>	5.718	5.767	-.06
	<u>SD</u>	.559	.504	
	<u>n</u>	39	30	
Vocational agriculture should be developed and conducted as part of educational systems.	<u>M</u>	5.667	5.333	.30
	<u>SD</u>	.577	.802	
	<u>n</u>	39	30	
Vocational agriculture should serve the individual student.	<u>M</u>	5.590	5.533	.06
	<u>SD</u>	.595	.629	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for the skills of leadership.	<u>M</u>	5.474	5.400	.07
	<u>SD</u>	.603	.675	
	<u>n</u>	38	30	
Vocational agriculture should be responsive to the needs of the individual for developing personal responsibility.	<u>M</u>	5.461	5.367	.09
	<u>SD</u>	.555	.809	
	<u>n</u>	39	30	
Vocational agriculture should cultivate and nurture public support at all program levels.	<u>M</u>	5.436	5.200	.19
	<u>SD</u>	.640	.887	
	<u>n</u>	39	30	

Note.

Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Appendix H continued.

Concepts		Teachers		r
		Most ¹	Least ²	
Vocational agriculture should relate to the productivity of people in terms of their willingness to produce efficiently.	<u>M</u>	5.436	5.200	.19
	<u>SD</u>	.598	.925	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its instructor qualifications.	<u>M</u>	5.395	5.033	.23
	<u>SD</u>	.638	1.245	
	<u>n</u>	38	30	
Vocational agriculture should be responsive to the needs of the individual for the skills of decision-making.	<u>M</u>	5.385	5.367	.02
	<u>SD</u>	.544	.765	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for developing a positive attitude towards learning.	<u>M</u>	5.385	5.200	.15
	<u>SD</u>	.673	.847	
	<u>n</u>	39	30	
Vocational agriculture should be in harmony with a total philosophy of education for the individual and society.	<u>M</u>	5.359	5.367	-.01
	<u>SD</u>	.743	.718	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its curriculum.	<u>M</u>	5.359	5.267	.07
	<u>SD</u>	.668	1.112	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for the skills of citizenship.	<u>M</u>	5.333	5.067	.22
	<u>SD</u>	.737	.740	
	<u>n</u>	39	30	
Vocational agriculture should be responsive to the needs of the individual for developing occupational responsibility.	<u>M</u>	5.308	5.400	-.09
	<u>SD</u>	.614	.675	
	<u>n</u>	39	30	

Note.

Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Appendix H continued.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should focus on preparing individuals for entrance into the work force or entrepreneurship.	<u>M</u>	5.308	5.367	-.05
	<u>SD</u>	.766	.850	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its facility and equipment needs for instruction.	<u>M</u>	5.308	5.067	.16
	<u>SD</u>	.766	1.081	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its student goals.	<u>M</u>	5.308	4.967	.23
	<u>SD</u>	.694	1.129	
	<u>n</u>	39	30	
Vocational agriculture should provide education for choice of an agricultural occupation through career motivation, career orientation, and career exploration.	<u>M</u>	5.282	5.133	.11
	<u>SD</u>	.759	.937	
	<u>n</u>	39	30	
Vocational agriculture should provide individuals with the capacities to continue to learn and transfer their skills to meet the changing job requirements of the agricultural sector.	<u>M</u>	5.256	5.400	-.12
	<u>SD</u>	.677	.814	
	<u>n</u>	39	30	
Vocational agriculture should focus on preparing individuals for work.	<u>M</u>	5.231	5.400	-.13
	<u>SD</u>	.842	.814	
	<u>n</u>	39	30	
Vocational agriculture should relate to the productivity of people in terms of their attitudes toward occupations.	<u>M</u>	5.205	5.100	.08
	<u>SD</u>	.732	.885	
	<u>n</u>	39	30	

Note.

Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Appendix H continued.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be responsive to the needs of the individual for the skills of communication.	<u>M</u>	5.205	5.067	.11
	<u>SD</u>	.656	.980	
	<u>n</u>	39	30	
Vocational agriculture should provide a time commitment of sufficient length and intensity to provide instruction important to the successful entrance of the student into the chosen occupation or entrepreneurship.	<u>M</u>	5.205	4.933	.22
	<u>SD</u>	.570	.944	
	<u>n</u>	39	30	
Vocational agriculture should be available for youth at the post-secondary level.	<u>M</u>	5.179	5.267	-.07
	<u>SD</u>	.756	.828	
	<u>n</u>	39	30	
Vocational agriculture should consider the opportunities within society when programs are established.	<u>M</u>	5.179	5.167	.01
	<u>SD</u>	.683	.834	
	<u>n</u>	39	30	
Vocational agriculture should be unique in its utilization of community resources.	<u>M</u>	5.179	5.067	.09
	<u>SD</u>	.601	.944	
	<u>n</u>	39	30	
Vocational agriculture should serve the business and industry of agriculture.	<u>M</u>	5.132	5.033	.07
	<u>SD</u>	.777	.964	
	<u>n</u>	38	30	
Vocational agriculture should relate to the productivity of people in terms of competencies in agricultural occupations.	<u>M</u>	5.128	5.133	.00
	<u>SD</u>	.695	.776	
	<u>n</u>	39	30	

Note.

Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Appendix H continued.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should begin by helping the student to define his/her occupational objective.	<u>M</u>	5.128	5.034	.07
	<u>SD</u>	.801	.865	
	<u>n</u>	39	29	
Vocational agriculture should be a unique and identifiable program which combines the skills and technical content of various disciplines with the practical requirements of the world of work, rather than as a discipline itself.	<u>M</u>	5.128	5.033	.07
	<u>SD</u>	.732	1.066	
	<u>n</u>	39	30	
Vocational agriculture should consider the interests of the individual student when programs are established.	<u>M</u>	5.103	5.267	-.13
	<u>SD</u>	.821	.785	
	<u>n</u>	39	30	
Vocational agriculture should be available for individuals at the adult level.	<u>M</u>	5.103	5.233	-.10
	<u>SD</u>	.788	.953	
	<u>n</u>	39	30	
Vocational agriculture should consider the needs of society when programs are established.	<u>M</u>	5.077	5.241	-.13
	<u>SD</u>	.774	.786	
	<u>n</u>	39	29	
Vocational agriculture should provide a time commitment of sufficient length and intensity to provide instruction important to the successful advancement of the student within the chosen occupation or entrepreneurship.	<u>M</u>	5.077	4.800	.22
	<u>SD</u>	.623	.925	
	<u>n</u>	39	30	
Vocational agriculture should provide education for upgrading.	<u>M</u>	5.026	5.000	.02
	<u>SD</u>	.778	.983	
	<u>n</u>	39	30	

Note.

Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

Appendix H continued.

Concepts		Teachers		<u>r</u>
		Most ¹	Least ²	
Vocational agriculture should be developed and conducted using an advisory group consisting of individuals representing business and industry in the occupational area in which the program is being offered.	<u>M</u>	5.000	4.833	.11
	<u>SD</u>	.761	1.085	
	<u>n</u>	39	30	
Vocational agriculture should balance the quantity of programs with employment patterns at the local, state, and national levels -- in that order.	<u>M</u>	4.842	5.067	-.14
	<u>SD</u>	.945	1.015	
	<u>n</u>	38	30	
Vocational agriculture should consider the competencies of the individual student when programs are established.	<u>M</u>	4.820	5.233	-.29
	<u>SD</u>	.914	.817	
	<u>n</u>	39	30	
Vocational agriculture should provide education for retraining.	<u>M</u>	4.718	4.767	-.03
	<u>SD</u>	.857	1.040	
	<u>n</u>	39	30	
<hr/>				
Overall strength of agreement with philosophy adopted by the profession	<u>M</u>	5.279	5.190	.14
	<u>SD</u>	.379	.438	
	<u>n</u>	35	28	

Note.

Means are based on extent of agreement with 1 representing strongly disagree and 6 representing strongly agree.

¹Most = teachers judged as being the most effective.

²Least = teachers judged as being the least effective.

APPENDIX I
Initial Eigenvalues and Percentage of
Variance for Each of the Factors Used
in the Factor Analysis

Appendix I
Initial Eigenvalues and Percentage of Variance For Each of
The Factors Used in the Factor Analysis.

	Eigenvalue	% of Variance
Factor 1	11.45	28.6
Factor 2	2.71	6.8
Factor 3	2.61	6.5
Factor 4	2.10	5.2
Factor 5	1.75	4.4
Factor 6	1.41	3.5
Factor 7	1.27	3.2
Factor 8	1.21	3.0
Factor 9	1.07	2.7
Factor 10	1.01	2.5

APPENDIX J

Means of Agreement With Selected Philosophical
Concepts Held By Agricultural Teachers in Virginia,
By Level of Students Taught

Appendix J

Means of Agreement With Selected Philosophical Concepts Held By Agricultural Teachers in Virginia, By Level of Students Taught.

Concepts		Jr ¹ High	Sr ² High	Jr & Sr ³ High
Vocational agriculture should serve the individual student	<u>M</u>	5.446	5.480	5.695
	<u>SD</u>	.630	.711	.527
	<u>n</u>	56	127	95
Vocational agriculture should serve the business and industry of agriculture	<u>M</u>	4.857	5.142	5.319
	<u>SD</u>	.999	.774	.691
	<u>n</u>	56	127	94
Vocational agriculture should relate to the productivity of people in terms of their attitudes towards occupations.	<u>M</u>	4.839	5.213	5.063
	<u>SD</u>	.949	.741	.823
	<u>n</u>	56	127	95
Vocational agriculture should serve the business and industry of agriculture	<u>M</u>	5.339	4.968	5.074
	<u>SD</u>	.837	.954	.948
	<u>n</u>	56	126	95

Note.

Concepts selected for this table were those with significant F statistics among the three groups (p=.05).

¹Teacher taught in junior high only. ²Teacher taught in senior high only. ³Teacher taught in both junior and senior high.

APPENDIX K

Correlations Between Agreement With Selected
Philosophical Concepts and Demographic Variables
of Agricultural Teachers in Virginia

Appendix K
 Correlations Between Agreement With Selected Philosophical
 Concepts and Demographic Variables of Agricultural Teachers
 in Virginia.

Items		Ed Level ¹	Age	Total Years ²	Cur Years ³
Vocational agriculture should balance the quantity of pro- grams with employment pat- terns at the local, state and national levels--in that order.	\bar{r} \bar{n}	.13 278			
Vocational agriculture should be unique in its instructor qualifications.	\bar{r} \bar{n}	.13 278	.13 280		
Vocational agriculture should be responsive to the needs of the individual for developing personal responsibility.	\bar{r} \bar{n}			-.13 282	
Vocational agriculture should be developed and conducted using an advisory group con- sisting of individuals repre- senting business and industry in the occupational area in which the program is being offered.	\bar{r} \bar{n}	.11 279			

Note.

Concepts selected for this table were those having an effect size of .1 or greater for at least one of the demographic variables.

¹1 = bachelor; 2 = bachelor + 15; 3 = bachelor + 30; 4 = master's; 5 = master's + 15; 6 = master's + 30; 7 = more than master's + 30. ²Total years of teaching vocational agriculture. ³Years of teaching vocational agriculture in current position.

Appendix K continued.

Items	Ed Level ¹	Age	Total Years ²	Cur Years ³
Vocational agriculture should provide individuals with the capacities to continue to learn and transfer their skills to meet the changing job requirements of the agricultural sector.	<u>r</u> <u>n</u>	.10 279	.11 279	
Vocational agriculture should be available for youth at the post-secondary level.	<u>r</u> <u>n</u>	-.13 281		-.11 281

Note.

Concepts selected for this table were those having an effect size of .1 or greater for at least one of the demographic variables.

¹1 = bachelor; 2 = bachelor + 15; 3 = bachelor + 30; 4 = master's; 5 = master's + 15; 6 = master's + 30; 7 = more than master's + 30. ²Total years of teaching vocational agriculture. ³Years of teaching vocational agriculture in current position.

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