TEACHING LEADERSHIP IN AGRICULTURAL SCIENCE: BEHAVIORAL FACTORS THAT INFLUENCE SECONDARY AGRICULTURAL SCIENCE LEADERSHIP INSTRUCTION

By

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This document is dedicated to my best friend, my wife Susan Morgan, and my three children, Tyler, Allison and Spencer for supporting me while I followed God's lead pursuing this degree.

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TABLE OF CONTENTS

APPENDIX

LIST OF TABLES

LIST OF FIGURES

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

TEACHING LEADERSHIP IN AGRICULTURAL SCIENCE:
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SCIENCE LEADERSHIP INSTRUCTION

By

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The extent to which leadership is being taught in agricultural science classrooms is unknown and the attributes of high school agricultural science instructors that influence their decision to formally teach leadership are unclear. Research has been conducted to determine the predictors of agricultural science program quality and how leadership skills affect youth and community, but no research has been conducted to determine the extent to which leadership is being taught in the formal agricultural science classroom or why agricultural science instructors choose to teach leadership. The following questions were addressed in this study: To what extent are high school agricultural science instructors teaching leadership in the formal classroom? What are the factors that influence high school agricultural science instructors to teach leadership?

This study, framed by the National FFA's LifeKnowledge curriculum, examined behavioral factors that influence high school agricultural science instructors to teach leadership in agricultural science classrooms. Using *ex post facto* research methods, a

model was developed to explain the dependent variable, level of leadership teaching behavior in high school agricultural science classrooms, in light of the independent variables, instructor leadership knowledge, instructor expectations of students after teaching leadership, instructor attitude toward teaching leadership, instructor leadership knowledge, and instructor demographics.

An *alpha* level of 0.05 was set *a priori*. A national sample of 400 instructors was contacted and 167 responded via mail and the Internet, yielding a 41.8% response rate. A regression model was used to explain leadership teaching behavior. The following variables significantly explained 33% of instructor leadership teaching behavior: Leadership course taught in agricultural science program, urban location of school, gender, and instructor attitude toward the teaching of leadership. Findings revealed most agricultural science instructors have a moderate attitude toward teaching leadership, have moderate expectations of students after leadership instruction, and moderate leadership knowledge, based on the LifeKnowledge curriculum. A recommendation was to provide LifeKnowledge curriculum training to pre-service teachers and provide professional development programs for in-service teachers to help increase instructor leadership knowledge.

CHAPTER 1
INTRODUCTION

Introduction to the Study

This study examined behavioral factors that influence high school agricultural science instructors to teach leadership in agricultural science classrooms. Using *ex post facto* research methods (Ary, Jacobs, & Razavieh, 1996) a model was developed to explain the dependent variable, instructor leadership teaching behavior of high school agricultural science instructors, in light of the independent variables, high school agricultural science instructor leadership knowledge, high school agricultural science instructor attitude towards teaching leadership, high school agricultural science instructor expectations after teaching leadership, and high school agricultural science instructor demographics. This chapter frames the study by defining leadership and providing a rationale for teaching leadership in high school. It then provides the historical background and current status of leadership instruction in agricultural education and the National FFA Organization. A brief description of the National FFA's LifeKnowledge curriculum is provided along with an explanation of how the curriculum spawned this research. Finally, the research problem and its significance are discussed.

Background

As we explore this issue, two questions should be addressed: "What is leadership?" and "Why should leadership be taught to high school students?" Leadership is a term with many definitions. The *Merriam-Webster Dictionary* (2003) defines leadership as "the office or position of a leader; the capacity to lead; the act or an instance

of leading." Northouse (2001) defines leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p.3). Kouzes and Posner (1997) define leadership as "The art of mobilizing others to want to struggle for shared aspirations" (p. 30). The LifeKnowledge curriculum defines leadership as "Influence – the ability to obtain followers" (p. 5). Maxwell (1993) simply defines leadership as "influence" (p. 1). For the purpose of this study the definition offered by Northouse (2001) will be used.

Why should leadership be taught to high school students? Throughout the United States businesses and government organizations are finding it difficult to fill leadership positions because of a lack of trained leaders--a leadership void (Bisoux, 2002; Burns, 1979; Figura, 1999). In an effort to prepare youth for successful careers, the U.S. Department of Labor (1999) published the Secretary's Commission on Achieving Necessary Skills (SCANS) that outlined the skills and competencies necessary for young people to succeed in the workplace. The goal was for the skills and competencies outlined in the SCANS report to be taught to youth through the secondary school system. One of the competencies deemed necessary in the SCANS report for workplace success was

> Exercises Leadership—Communicates thoughts, feelings, and ideas to justify a position, encourages, persuades, convinces, or otherwise motivates an individual or groups, including responsibly challenging existing procedures, policies, or authority. Demonstrating competence in exercising leadership includes making positive use of the rules/values followed by others; justifying a position logically and appropriately; establishing credibility through competence and integrity; and taking minority viewpoints into consideration. (U.S. Department of Labor, 1999)

In an effort to fill the existing leadership void and properly prepare youth for workplace challenges it is necessary to teach leadership to high school students.

For the past 75 years, high school agricultural education courses have created an environment for students to "exercise leadership" and acquire many of the competencies outlined in the SCANS report through the teaching of leadership skills (National Research Council, 1988). Today leadership remains a cornerstone of the agricultural education curriculum with many of the over 12,000 high school agricultural science instructors teaching leadership competencies, including parliamentary law, proper business meeting procedure and public speaking, to over 712,000 students enrolled in agriculture courses (Barrett, 1983; National FFA Organization, 2002). A variety of curriculum resources specifically designed for agricultural education students are available for teaching leadership including material published by North Carolina State University (2003), Instructional Materials Service (2003), Interstate Publishers (Prentice Hall, 2003), and Delmar Publishers (2003).

In addition to leadership instruction in the agriculture classroom, the co-curricular partnership with the National FFA Organization provides opportunities for youth to practice and demonstrate leadership competencies to prepare youth for successful careers. Historically, the marriage of agriculture and leadership grew out of the need for farmers to share successful agricultural practices with one another. Agricultural societies were formed so that new farming techniques could be shared with others and published, benefiting farmers in a local community. Out of these agricultural societies grew corn clubs for boys and girls, which provided opportunities for youth to meet, learn and participate in agricultural competitions. The boys' and girls' clubs were the forerunner of the Future Farmers of America, now the National FFA Organization (Barrett, 1983; Hillison & Bryant, 2001).

Since its inception in 1928, the National FFA Organization has provided an avenue for young people to exercise and develop their leadership skills. The 33 young men that gathered in Kansas City to form the National FFA Organization specifically stated the goal of the organization: to "provide leadership training for high school students of vocational agriculture" (National FFA Organization, 2002, p. 5). Today the National FFA Organization continues this tradition of developing leadership skills in its 461,000 members. The mission statement links the original goal of the organization to the present by stating, "FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education" (National FFA Organization, 2002, p.5).

The link between the high school agricultural science program and the co-curricular National FFA Organization is unique. The agricultural science classroom provides a venue where the high school agricultural science instructor has the opportunity to teach leadership skills and students can learn leadership knowledge and actively engage in leadership activities. The FFA reinforces these leadership skills by providing opportunities for young people to participate in nonformal laboratory settings such as competitive leadership activities and opportunities (officers, committee chairs, etc.) for youth to lead at the local level and beyond. Although leadership education has been espoused by agricultural education and the FFA since its inception, no studies have been conducted to determine the extent to which leadership is taught through formal agricultural education curricula.

To strengthen leadership instruction in agricultural science classrooms the National FFA Organization, with the assistance of high school agricultural science instructors,

college faculty, state department of education staff, agriculture industry partners, the USDA, and others recently completed the LifeKnowledge curriculum. The instructional materials associated with the new curriculum consists of over 267 50-minute lessons that were distributed nationally and utilized in agricultural science classrooms beginning in spring and summer 2004. The curriculum materials may be used as a stand-alone curriculum or the lessons may be incorporated into existing classes. The goal of the curriculum is to

> Provide quality instructional materials so teachers can infuse premier leadership, personal growth and career success into every facet of agricultural education and provide teachers with additional practical learning strategies and corresponding instructional materials to empower young people to live the FFA mission every day. (National FFA Organization, 2003)

High school agricultural science instructors have a great deal of influence over what curriculum they teach in the classroom (Rogers, 1999). By controlling the quantity and quality of curriculum taught in the classroom they are a key element in education (Kimpston & Anderson, 1982). Because the high school agricultural science instructor has such an important role, the following questions arise: To what extent is leadership being taught in agricultural science classrooms? What factors influence high school agricultural science instructors to teach leadership? Will the introduction of the new LifeKnowledge curriculum increase the frequency and quality of leadership instruction in high school agricultural education programs? To help determine the impact of this curriculum, baseline data must be gathered to determine current levels of leadership instruction in agricultural science classrooms.

Problem Statement

The extent to which leadership is being taught in agricultural science classrooms is unknown and the attributes of high school agricultural science instructors that influence

their decision to formally teach leadership are unclear. Research has been conducted to determine predictors of agricultural science program quality (Vaughn & Moore, 2000) and how leadership skills affect youth (Carter & Spotanski, 1989; Dormody, 1994a; Ricketts & Newcomb, 1984; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002; Scanlon & Burket, 1986; Townsend & Carter, 1983) and community (Brannon, Holley & Key, 1989) but no research has been conducted to determine the extent to which leadership is being taught in the formal agricultural science classroom or why high school agricultural science instructors choose to teach leadership.

The following research questions are addressed in this study: To what extent are high school agricultural science instructors teaching leadership in the formal classroom? What are the factors that influence high school agricultural science instructors to teach, or not teach, leadership?

Significance

The outcomes of this study have the potential to impact both high school agricultural science instructors and students. By determining the factors that influence high school agricultural science instructors to teach leadership, pre-service programs could be tailored to motivate future high school agricultural science instructors to teach leadership. In-service workshops could be planned to specifically motivate the behavior of high school agricultural science instructors in such a way that they may increase the level of leadership instruction in agricultural classrooms. Students could benefit by receiving high quantity leadership instruction in high school agricultural education programs that has the potential to broaden their leadership skills, increase their personal growth and enhance their career success throughout their lives.

In addition, writers of current leadership curriculum, such as that developed by the National FFA Organization, could revise and tailor their materials to enhance their impact on high school agricultural science instructors. In-service opportunities could be designed to target the factors that motivate high school agricultural science instructors to teach leadership, possibly leading to the full integration of the leadership curriculum. Other organizations may benefit from this research as well because the information found here may enable them to motivate their instructors to be better prepared to teach leadership principles.

Furthermore, gathering baseline data on the leadership teaching behavior of agricultural science instructors will allow future studies to measure change in leadership teaching behavior and gauge the impact of the LifeKnowledge curriculum.

Previous studies have determined predictors of successful agricultural science programs, determined the benefits of teaching leadership to youth, justified the teaching of leadership in agriscience classrooms, and determined the qualities of an effective high school agricultural science instructor, but few have specifically looked at what influences high school agricultural science instructors to teach a specific subject. The breadth of influence of this study has the potential to be significant by eliciting behavior change in high school agricultural science instructors to formally teach leadership to youth.

Purpose

The purpose of the study was to determine the extent to which high school agricultural science instructors are currently teaching leadership in formal agricultural science classrooms and to explain what influences high school agricultural science instructors to teach leadership in the classroom. The specific objectives were to

- Determine the demographic characteristics of high school agricultural science instructors;
- determine the extent to which leadership is being taught in high school agricultural science classrooms;
- determine high school agricultural science instructor leadership knowledge based on National FFA LifeKnowledge leadership curriculum;
- determine high school agricultural science instructor attitude towards teaching leadership;
- determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught; and
- explain the relationships between high school agricultural science instructor leadership knowledge, attitude towards teaching leadership, expectations of students, and high school agricultural science instructor demographics in light of high school agricultural science leadership content area teaching behavior.

Assumptions

Two assumptions were made in this study: first, that the local agricultural science program has sufficient support (logistical, financial, etc., from district, community, principal and others) to teach leadership; second, that the high school agricultural science instructors will respond honestly to the questionnaire.

Limitations

The results of this study can only be extended to the population studied, which is high school agricultural science instructors in the United States during the 2003-2004 school year. Individuals chosen to be part of the research sample cannot be forced to participate in the study; therefore only high school agricultural science instructors that want to participate will provide survey information.

The instrument has limited reliability in that it has not previously been used with a national population.

Definitions

For the purposes of this study, the following terms were defined operationally:

- **Agricultural education**: describes the profession of teaching students about all areas of agriculture from production to consumption. Many times it is used in this study to denote any agricultural situation, occurrence, or topic where a student may learn something as an outcome, whether an agricultural educator is present or not (Ricketts, 2003).

- **Civic organizations**: organizations established to serve the community (e.g., Lions Club and Kiwanis).

- **FFA Organization**: formerly the Future Farmers of America, it is a youth organization of individuals enrolled in agricultural education courses. It is intended to supplement the agricultural education process with opportunities for students to develop their leadership, personal growth, and success in their future careers (Ricketts, 2003).

- **High school agricultural science instructor leadership knowledge**: knowledge of elements and principles of leadership based on the LifeKnowledge (National FFA Organization, 2003) curriculum.

- **High school agricultural science instructor leadership teaching behavior**: the extent to which leadership instruction is conducted by the high school agricultural science instructor.

- **Professional development organizations**: professional organizations open to people desiring to develop their professional and business skills (e.g., Toastmasters).

- **Professional education organizations**: professional organizations such as state education association, Association for Career and Technical Education (ACTE), and National Association of Agricultural Educators (NAAE) for educators.

- **Student leadership organizations, other than FFA**: youth organizations such as 4-H, Vocational Industrial Clubs of America (VICA), Distributive Education Clubs of America (DECA), student council, and National Honor Society.

- **Student organizations at the college level**: honor and social organizations such as Collegiate FFA, Alpha Tau Alpha, fraternities, sororities, and student government.

Chapter Summary

The primary purpose of this study was to describe the extent to which high school agricultural science instructors are currently teaching leadership and to identify factors

that influence the level of high school agricultural science instructors teaching of leadership in the classroom. This chapter provided a brief history of the role of leadership in agriculture, agricultural education and the National FFA Organization. FFA has been a proponent of teaching leadership to agriculture students since its inception. Because of this, the FFA has recently developed the LifeKnowledge curriculum to teach leadership principles to students enrolled in secondary agricultural education courses.

Few previous studies have addressed factors influencing high school agricultural science instructors' teaching of a specific subject. This research investigated factors that influence agricultural science instructors to teach leadership. The results of this study may influence future pre-service and in-service activities, and will provide baseline data for future research in this area.

The specific factors studied were high school agricultural science instructor leadership knowledge, high school agricultural science instructor leadership attitude toward teaching leadership, high school agricultural science instructor leadership expectations of students and high school agricultural science instructor demographics. These four factors were used to explain the high school agricultural science instructor behavior of teaching leadership.

CHAPTER 2
REVIEW OF THE LITERATURE

Chapter 1 introduced this study, discussed the importance of teaching leadership to youth, and described why teaching leadership is an integral part of high school agricultural education. Also discussed were the National FFA Organization's role in youth leadership education and their participation in the development of the LifeKnowledge curriculum. In addition, an outline of the research problem was presented and the significance of this study was explained.

The purpose of this study was to determine the extent to which high school agricultural science instructors are currently teaching leadership in formal agricultural science classrooms and to explain what influences high school agricultural science instructors to teach leadership in the classroom. To accomplish this, a modified version of the Triandis (1971) behavioral model which incorporates knowledge, attitude and expectations to explain behavioral outcomes was used. Specifically this study sought to

- Determine the demographic characteristics of high school agricultural science instructors;
- determine the extent to which leadership is being taught in high school agricultural science classrooms;
- determine high school agricultural science instructor leadership knowledge based on National FFA LifeKnowledge leadership curriculum;
- determine high school agricultural science instructor attitude towards teaching leadership;
- determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught; and

- explain the relationship between high school agricultural science instructor leadership knowledge, high school agricultural science instructor attitude towards teaching leadership, high school agricultural science instructor expectations of students, and high school agricultural science instructor demographics in light of high school agricultural science instructor leadership content area teaching behavior.

This chapter presents the conceptual and theoretical framework of the research. Specifically, this chapter describes previous research conducted about the importance to teaching leadership, youth leadership development, leadership curriculum, the theoretical behavior model, and the explanatory variables of behavior. Included are refereed articles, non-refereed publications, research conference proceedings, dissertations, theses, textbooks, articles from the ERIC Document Reproduction Service, and government publications.

Defining Leadership

Leadership is a term with many definitions. The *Merriam-Webster Dictionary* (2003) defines leadership as "the office or position of a leader; the capacity to lead; the act or an instance of leading." Burns (1979) in his book *Leadership* defines it as "leaders inducing followers to act for certain goals that represent the values and the motivations---the wants and needs, the aspirations and expectations--*of both leaders and followers* [italics in original text]" (p. 19). Gardner (1990) tells us that leadership is "the process of persuasion or example by which an individual (or leadership team) induces a group to pursue objectives held by the leader or shared by the leader and his or her followers" (p. 1). Bass (1990) defines leadership as "an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perceptions of the members" (p. 19). The definition of leadership formed by Kouzes and

Posner (1997) is "The art of mobilizing others to want to struggle for shared aspirations" (p. 30).

Hersey, Blanchard and Johnson (2001) refer to leadership as influencing others, "whenever one person attempts to influence the behavior of an individual or group, regardless of the reason" (p. 9). Similarly Northouse (2001) defines leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 3). Maxwell (1993) simply defines leadership as "influence" (p. 1).

Ricketts and Rudd's (2002) Model for Youth Leadership Curriculum states that leadership consists of these components: knowledge and information; attitude, will and desire; decision making, reasoning and critical thinking; intrapersonal and interpersonal skills; and oral and written communication skills. When defining leadership for youth van Linden and Fertman (1998) define leadership as "a physical sensation: a need to share ideas, energy, and creativity, and not let personal insecurities be an obstacle" (p. 17). For the purpose of this study, the definition offered by Northouse (2001) will be used.

The Importance of Teaching Leadership

People are needed to fill leadership roles at all levels of society, from the soccer coach to the president of the homeowners association to leading problem-solving groups in the workforce, we need leaders (Gardner, 1990). Yet education has focused on equipping people with technical job skills while overlooking leadership skills critical to career success (Benson, 1983). "Aging baby boomers with key management positions" (Figura, 1999, p. 20) will be retiring in the coming years, taking with them a vast amount of experience and leadership skills. Due to lower birth rates in the 1960's and 1970's, a

smaller pool of young talent will be available fill these leadership positions, causing a leadership void.

From an industry perspective, the business environment is becoming increasingly global, requiring leadership skills that can guide companies to success (Karnes & Stephens, 1999; Wah, 1999; Stewart, 1998). These leaders, whether they are employees, supervisors, managers, administrators, or CEOs, will need leadership skills such as honesty, integrity, teamwork, communication skills, and interpersonal skills to be successful (McKinley, Birkenholz, & Stewart, 1993; Morrison, 2000; Spotauski & Carter, 1993; University of North Carolina, 2003).

The need for skilled leaders will continue in the years to come. To help fill this leadership void, high schools should prepare to train leaders (Barrett, 1983). Students who have been taught leadership are better prepared to act in a leadership capacity because they better understand the phenomena of leadership as a personal and attainable undertaking (Ricketts & Rudd, 2002).

Early studies of leadership focused on innate leadership traits, but as the study of leadership has evolved over the years, we know that leadership knowledge and skill can be taught and learned (Bass, 1990; Gardner, 1990; McCall, 1998; Northouse, 2001). Furthermore, studies reveal that leadership can and should be taught to youth (Jones, 1938; Schmidt, 2001; van Linden & Fertman, 1998; Zeldin & Camino, 1999).

Youth Leadership Development

The value of developing leadership knowledge and skills in youth in order to prepare them for their future roles as citizens has been known for a number of years (Boy Scouts of America, 2003; Boys and Girls Clubs, 2003; van Linden & Fertman, 1998).

This section will discuss some of the youth organizations that seek to instill leadership in youth.

Existing Youth Programs

Many programs are available in which youth can gain leadership skills. Boy Scouts have a history of producing leaders by training "young people in citizenship, service, and leadership" (Boy Scouts of America, 2003). Boys and Girls Clubs strive to develop youth into productive citizens through developing leadership skills (Boys and Girls Clubs, 2003). Van Linden and Fertman (1998) discuss a number of youth organizations and opportunities for leadership development including YMCA, Red Cross, and leadership camps.

The 4-H organization has a long history of youth development in an agricultural context. Mueller (1989) investigated the belief that 4-H youth leadership involvement improves self-esteem. Of the 868 members in the sample, 402 responded, revealing that 4-H youth's level of participation in leadership activities was significantly related to leadership skill gain, relationship with 4-H leaders, and frequency of involvement in planning, implementing, and evaluating activities. Mueller's results indicated that leadership activities can help prepare youth for participation in leadership roles, and that working with adults was an important factor of leadership development.

Seevers and Dormody (1994) surveyed 4-H members to describe the involvement of senior 4-H members in planning, implementing and evaluating 4-H youth leadership activities. A 59% response rate with 234 respondents revealed that participation in 4-H leadership life skills activities was greatest at the club level. Activities identified and ranked as contributing highly toward leadership life skills development were holding office, teaching younger members, fairs, livestock shows, judging contests,

demonstrations, public speaking, and community service. 4-H members indicated their greatest involvement in leadership development activities was through implementing activities, followed by evaluating activities. This finding is important in that it illustrates youth benefit most when they have the opportunity to become involved with the planning, implementation, and the evaluation of activities. Although this study illustrates how youth can develop leadership skills through participation in organized life skills activities, it is based on self-perceived leadership skills and doesn't objectively analyze what leadership skills the members possess.

High School Youth Programs

The high school environment has many leadership opportunities for students. Wallin (2003), in her case study of 40 students, found that students accept leadership roles in student council, athletics, and co-curricular activities. She also found that upperclassmen set the tone for leadership participation. Her results included suggestions for student involvement with administrative decisions and setting high standards for students to achieve. In addition, Chmielewski (2000) reinforced that it is important for teachers and administrators to take a proactive role with student organizations, including seminar and workshop attendance for leadership skill development. These studies reinforce the importance of adult involvement in youth organizations for leadership skills to develop.

Organizations such as Students Active in Leadership (SAIL) provide students leadership opportunities that allow students to organize activities that benefit the community (Brutcher, 2003). This provides opportunities for students to develop leadership skills through activities such as securing funding for local projects through

grants and donations. Additional leadership skills are developed through interaction with local officials and volunteers.

Some schools have implemented student leadership camps and retreats to assist students in developing leadership skills. At these camps students are provided training in being a role model, dealing with peer pressure, making good choices, and the qualities of a leader (Wolff, 2002).

The value of students learning about or experiencing leadership is important. Carter and Spotanski (1989) surveyed a convenience sample of 3437 Iowa high school students, located in three schools, over a three-year period and found that students who have served as a committee chair, officer, or have received formal leadership training, consistently rated each of the 10 measurement scales used significantly higher than students without these leadership experiences. Although the instrument assessed self-perceived skills, it is worth noting that students with leadership experience had greater self-perception, and possibly greater self-confidence, than did the students without leadership experience. A recommendation of this research was to develop curriculum materials for leadership education in high school.

Career and Technical Education Youth Programs

High school career and technical education programs are in a prime position to teach leadership skills to youth. Federal and state guidelines require these programs to teach students leadership skills along with technical job skills. These leadership skills help to provide students with the human resource skills required in the current work place (Leventhal, 1999; Ricketts & Rudd, 2002).

To quantify the leadership benefits to students in career and technical programs, a study was conducted of 427 distributive education students who were active in the high

school career and technical student organization DECA, as compared to distributive education students who had little or no activity in DECA. Results showed that students who are involved in career and technical club leadership activities tend to develop or acquire more leadership characteristics than students who are not involved in these activities (Clark, 1977). This study illustrates that leadership activity involvement can lead to youth leadership skill development.

To determine and compare perceptions of advisors and chapter presidents of career and technical student organizations, a study was conducted using a random sample of 200 Ohio youth organization chapters including DECA, National FFA Organization, Future Homemakers of America, and Vocational Industrial Clubs of America. It was determined that leadership skills were being developed in the chapter presidents of these organizations (White, 1982). Although developing leadership skills in club presidents is beneficial, ideally all members of a youth organization would have the opportunity to develop leadership skills.

Impact of Agricultural Science and FFA Programs on Youth Leadership

Agricultural science programs encourage students to develop leadership skills through a wide variety of opportunities such as classroom instruction, supervised agricultural experience and FFA activities (Esters, 2002). This is a strength of these programs, in that they provide leadership training in the classroom and reinforce that training through FFA activities.

The local chapters of the National FFA Organization shoulder the primary responsibility for providing leadership training and realistic leadership experiences for students involved in agricultural education (Brannon, Holley & Key, 1989; National FFA Organization, 2002). Leadership development has been a goal of FFA from the inception

of the organization in 1928 (Connors, 1999; National Research Council, 1988). Through participation in FFA events, students have been able to obtain valuable leadership experiences in both formal and non-formal activities (Esters, 2002).

A study by Townsend and Carter (1983) described the relationship between participation in FFA activities and development of leadership competencies. The population consisted of Iowa senior agriculture students from 54 randomly selected high schools, which generated 426 responses yielding a 67% response rate. Findings of the study show that self-perceived leadership competencies had a significant correlation with FFA participation. The results suggest the leadership trait is enhanced with FFA activity. In addition, students who attended state and national FFA conferences had a higher perception of their leadership abilities than did non-participants. These findings were similar to the findings of Seevers and Dormody (1994) and Clark (1977), providing some evidence of the benefits of youth involvement in organized leadership activities. A limiting factor with these three studies is they measure self-perceived leadership traits. Using an objective measure may have increased the validity of these studies.

Ricketts and Newcomb (1984) surveyed 258 high school students, from 16 randomly selected high schools, to describe leadership and personal development abilities possessed by high school seniors. The study revealed that agriculture students and FFA members from both superior and non-superior chapters possess significantly more leadership and personal development abilities than did students not enrolled in agriculture. They also found that students who are more active tend to develop higher levels of leadership and personal development ability, and that vocational agriculture students and FFA members from superior FFA chapters are more active in FFA activities

than vocational agriculture students and FFA members from non-superior chapters. It was also determined that the level of chapter member activity has a higher relationship to leadership and personal development abilities possessed by FFA members than member involvement at district or regional, state and national levels. Therefore, the more active a student is in the local chapter, the greater their self-perceived leadership and personal development abilities. Once again, the positive relationship between self-perceived leadership ability and FFA involvement is revealed, illustrating that students enrolled in agriculture classes have a higher perceived level of leadership ability than their peers not enrolled in agriculture classes.

Stewart, Smith, Ehlert, and Mihalevich (1985) came to similar conclusions when they surveyed 483 advisors and FFA members from 44 FFA chapters. They found that local FFA chapter officers realized greater achievement from FFA membership than did regular members. This reinforces the previous findings that the more involved a student is in the organization, the greater their rewards. In addition, these results indicate that students holding an office benefit more in terms of perceived level of achievement, than those students that did not hold an office.

Dormody and Seevers (1994b) using a stratified random sample technique, surveyed 400 FFA members from three states to determine predictors of youth leadership life skills development. A 67% response rate was achieved. Achievement expectancy, or a combination of the level of evaluation FFA members expect from others and the level of performance they expect from themselves in FFA activities and projects, had a positive relationship with youth leadership life skills development. Participation in FFA leadership activities had a weak positive relationship with youth leadership life skills

development. In addition, judging contests, public speaking, chapter meetings, holding office, and parliamentary procedure were often cited as activities that made the greatest contribution to the students' leadership life skills.

Using the Dormody and Seevers instrument, Wingenbach (1995) analyzed self-perceived youth leadership and life skills of Iowa FFA members. Wingenbach used a random sample survey and received 316 usable questionnaires. A 79% response rate was achieved. The activities of chapter meetings, fundraising events, chapter banquets, SAE projects, and being an FFA committee member were found to have a significant relationship with the youth leadership and life skill development score. Also found were low positive correlations between youth leadership and life skills development scores and FFA leadership activities, and years of membership in the FFA. The major finding of this study was that participation in FFA leadership activities, in combination with the variables of after school jobs, years in FFA, self-reported cumulative grades, and gender, accounted for 22% of the variance in youth leadership and life skills development scores, with FFA activity being the most significant predictor of youth leadership and life skills development. This reinforces early studies in which FFA activity lead to self-perceived leadership skills.

A survey of FFA chapter officers found that participation in FFA activities had a positive influence on the students' perceived leadership skills. Rutherford, Townsend, Briers, Cummins, and Conrad (2002) surveyed student FFA members attending the National FFA Organization's Washington Leadership Conference (WLC). Of the 2086 student conference attendees, 279 self-selected attendees completed the instrument. No steps were taken to control for non-response error, and as such, the results were only

applied to the participants of the study. The purpose of the study was to determine relationships between WLC participants' self-perception of their leadership skills and their chapter size, length of membership, level of involvement, and involvement in an officer position. This instrument was based on the instrument used by Townsend (1983). Findings revealed that a significant positive relationship was found between self-perceived leadership skills and FFA level of involvement. Results concerning level of FFA involvement found that self-perceived leadership traits of youth are enhanced by participation in FFA activities and supported research of several authors (Carter & Spotanski, 1989; Townsend & Carter, 1983). The positive, though not strong, correlation between level of FFA involvement and the instrument leadership scales reinforces the positive relationship between FFA activity and perceived leadership skills.

Section Summary

From Scouting to 4-H, youth organizations have been developing leadership skills in youth for many years. An abundance of research exists showing that these organizations develop self-perceived leadership skills in young people. For many youth, involvement in these organizations begins in high school through participation in extracurricular and intracurricular organizations. Career and technical organizations are particularly suited to develop leadership skills in youth, as Federal and State guidelines mandate that leadership training be incorporated into the curriculum.

The National FFA Organization stands out from these organizations by providing a wide range of opportunities for students to develop leadership skills and through classroom leadership instruction. It has been well documented that students' participation in FFA activities leads to increased student self-perceived leadership skill development.

The importance of student involvement in youth leadership organizations cannot be stressed enough. Involvement in these organizations allows youth the opportunity to develop leadership skills that will benefit them throughout their lives. Franklin Roosevelt stated, "We cannot always build the future for our youth, but we can build our youth for the future" (Riordon, 2000, p. 202). Agricultural science classrooms are an excellent place to begin building youth for the future through the teaching of leadership.

A Leadership Curriculum for Youth

The preceding research illustrates the benefits of youth being exposed to leadership opportunities through extra-curricular and co-curricular activities. Unfortunately, not all students participate in these activities. What is needed is a curriculum that can be taught in the classroom so that all students can have the opportunity to learn leadership knowledge and skills (Carter & Spotanski, 1989; Ricketts & Rudd, 2001). Although high school agricultural science instructors have the skills to develop their own curriculum materials, they prefer to use pre-existing materials (Wingenbach, Gartin, & Lawarence, 2000) and the use of a quality curriculum provides a strong foundation for quality teaching to occur (Swan, 1996).

Boccia (1997) points out "there is a meager base of programmatic guidelines for successful student leadership in schools" (p. 76). Leadership textbooks are available (Delmar Learning, 2003; Prentice Hall, 2003) and leadership curriculum has been developed for some states (Commonwealth of Virginia Board of Education, 2001; Instructional Materials Service, 2003; North Carolina State University, 2003; Virginia Division of Policy and Public Affairs, 2001) to address local needs, but no national curriculum is currently available.

The Model of Youth Leadership Development

To develop a framework for a comprehensive youth leadership curriculum, Ricketts and Rudd (2002) conducted a meta-analysis of youth leadership development literature. Based on this research, the *Model of Youth Leadership Development* was developed (see figure 2.1). This model consists of five dimensions:

- Leadership knowledge and information--Base knowledge needed about leaders and leadership before application of leadership concepts.
- Leadership attitude, will and desire--Focuses on disposition, motivation, self-realization, and health to prepare students for leadership.
- Decision making, reasoning, and critical thinking--Using critical thinking skills to address problems and make decisions with incomplete information.
- Oral and written communication skills--Skills necessary to effectively sharing information and convey ideas, attitudes, opinions and feelings.
- Intrapersonal and interpersonal relations--Includes conflict resolution, stress management, teamwork and ethics viewed through the framework of diversity, learning styles and personality types (Ricketts, 2003).

Each dimension represents one construct for which a curricular unit was developed. Each curricular unit is designed so it can be taught at three different levels of cognition: awareness, integration and mastery. By addressing each stage in each dimension, a complete and cohesive nature of a leadership curriculum is possible (Ricketts & Rudd, 2001).

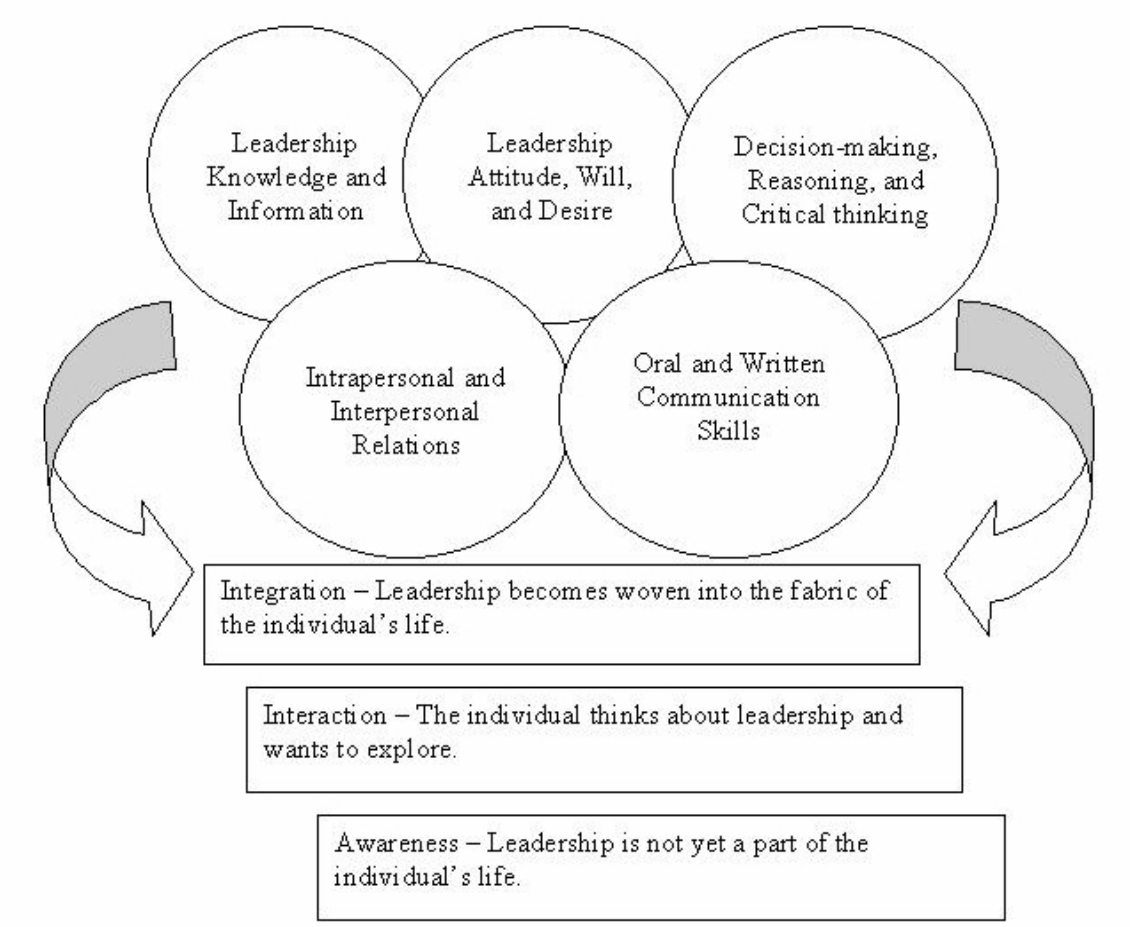


Figure 2-1. Model of Youth Leadership Development. From Ricketts, J. C., & Rudd, R. D. (2002). A comprehensive leadership education model to train, teach, and develop leadership in youth. *Journal of Career and Technical Education, 19* (1), 7-17.

LifeKnowledge Curriculum Origin and Development

The LifeKnowledge curriculum grew out of the mission statement of the National FFA Organization: To make a positive difference in lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education. To better serve organization members, FFA leadership began to take the steps necessary to develop a curriculum that would address the elements of the mission statement (Derner, 2004). The FFA mission and The Model of Youth Leadership

Development framework (Ricketts & Rudd, 2002) were used as a guide to conceptualize and construct the LifeKnowledge leadership curriculum.

The first step taken by the National FFA Organization brought together educators, business leaders, government leaders, agricultural education leaders, and FFA leaders to define measurable outcomes needed to master the constructs related to leadership, personal growth and career success. Once the outcomes were defined, money was secured to fund the development of a curriculum to address these constructs (Derner, 2004).

Agriculture instructors, graduate students and university faculty were brought together to develop lessons for the curriculum. Once these lessons were written, they were sent to agriculture instructors for "trial" use and evaluation. Based on comments received from the evaluating instructors, corrections were made to the lessons. The lessons were then combined into a curriculum that was made available to agriculture instructors nationwide in 2004 (Derner, 2004).

The purpose of this curriculum is to provide quality instructional materials so teachers can infuse premier leadership, personal growth, and career success into every facet of agricultural education and to provide teachers with additional practical learning strategies and corresponding instructional materials to empower young people to live the FFA mission every day. While the LifeKnowledge curriculum addresses the three areas of the FFA mission statement, this study addresses only the leadership component of this curriculum.

Six leadership constructs are included in the curriculum: action, vision, character, relationships, awareness, and continuous improvement. The LifeKnowledge curriculum

defines action as "demonstration of the skills and competencies needed to achieve the desired results" (National FFA Organization, 2003, p. 10). Action "embraces empowerment, risk, communication, focusing on results, decision-making, problem solution, investment in individuals, and resource use and access" (National FFA Organization, 2003, p. 10).

Vision is defined by the LifeKnowledge curriculum as "setting a clear image of what the future should be." Vision "embraces enthusiasm, creativity, the future, conviction, mission, courage, concept, focus, principles, and change" (National FFA Organization, 2003, p. 10).

The LifeKnowledge curriculum defines character as "a collection of virtues by which we live our lives." Character "embraces integrity, courage, values, attitude, ethics, humility, perseverance, self-discipline and responsibility" (National FFA Organization, 2003, p. 10).

Relationships are defined by the LifeKnowledge curriculum as "building a constituency." Relationships "embrace compassion, service, listening, coaching, developing others, team development, and understanding and appreciating others" (National FFA Organization, 2003, p. 10).

Awareness is defined as "a quest for purposeful understanding." Awareness includes "self, community, diversity, environment, global and knowledge" (National FFA Organization, 2003, p. 10).

The LifeKnowledge curriculum defines continuous improvement as "the pursuit of learning and growth." Continuous improvement "embraces innovation, intuition,

adaptation, life-long learning, and coachability" (National FFA Organization, 2003, p. 10).

Curriculum Adoption

Having a new curriculum with which to teach high school students leadership knowledge and skills has the potential to be advantageous to students' learning, but prior to students benefiting from the curriculum the instructors must first adopt it. Studies have found a common set of characteristics that lead to curriculum adoption (Bland, Starnaman, Wersal, Moorhead-Rosenburg, Zonia, & Henry, 2000). Bland et al. identified five categories for successful curriculum change: politics, participation by organization members, human resource development, evaluations and leadership.

Politics revolve around the allocation of scarce resources (Bolman & Deal, 1997). These resources include internal networking and resource allocation. Internal networking consists of formal and informal channels through which people are influenced by opinion leaders (Bland et al., 2000; Rogers, 2003). Successful change requires advocates within this network. Resource allocation requires having the necessary funds to implement the change. These funds may be required for purchasing curriculum, or may be necessary for faculty training of the curriculum. Fortunately, the National FFA Organization has sufficient financial support to provide the LifeKnowledge curriculum and training to agricultural science instructors throughout the country.

Possibly the most influential political element in curriculum adoption today is the popularity of standardized testing and accountability within the school system (Frontline, 2002). Students in many states are required to pass a standardized test prior to moving on to the next grade level. Using the student scores from these tests, schools can be rated and held accountable for students' passing and failing these tests (Doherty, 2004).

Because of the impact these tests have upon the students' success as well as the school's accountability, a tremendous amount of effort goes into preparing students to pass these tests (FairTest.org, 2004). This may have an impact on the subjects offered in the schools. Subjects that do not have a direct positive impact on student standardized test scores may be at risk of being eliminated from the school course offerings. Standardized tests usually assess the students' knowledge of mathematics, reading and grammar (Doherty, 2004). Typically, leadership is not a concept that students are held accountable for with these tests, and therefore a leadership curriculum may not be adopted in a school because it does not contribute to the success of students on standardized tests. This would be an unfortunate situation, because the skills learned through leadership instruction are skills that will benefit students regardless of the career in which they enter, providing them with the leadership and communication skills desired by employers (Boccia, 1997; Figura, 1999).

Participation by organization members is a key element to successful change (Bland et al., 2000). Curriculum adoption efforts must have the support of instructors for the adoption effort to be a success. One method to accomplish this is to include instructors in the implementation of the adoption process (Butler, 1999; Lowery, 2000). As stated by Connors (1999), "Teachers must see a need for change, believe it is justified, and be able to recognize problems that can be addressed by adoption of the curriculum" (p. 54). Including instructors in the adoption process increases their skill development and the likelihood of curriculum implementation (Bland et al., 2000). Therefore, instructors must be willing to participate in the curriculum change for success to occur. High school agricultural science instructors have been involved with the LifeKnowledge

curriculum since its inception. University faculty, that were previously secondary instructors, developed the framework for the curriculum. Current and former instructors wrote the lessons, and the lessons were field tested and critiqued by current agriculture instructors.

Human resource development in the form of professional development workshops and seminars is important to allow instructors to see how the curriculum is properly utilized are necessary for successful curriculum adoption (Kirk & MacDonald, 2001; Leat & Higgins, 2002). In this way, instructors' needs can be met through proper professional development, training, and support through the curriculum adoption process (Bland et al., 2000). LifeKnowledge curriculum workshops were held across the country, led by the curriculum authors, to train agricultural instructors how to incorporate the curriculum into existing lessons and how to implement the entire curriculum.

Evaluation allows for monitoring of implemented changes and solving problems as they arise (Bland et al, 2000). The national scope of the LifeKnowledge curriculum distribution will require that instructors across the country be contacted to monitor and evaluate the adoption process. The findings of this current study will assist in the evaluation process by providing baseline data of current leadership instruction. Future studies can be conducted to determine the rate of adoption of the LifeKnowledge curriculum. This information may be helpful in determining future professional development seminars and possible curriculum changes in order that the curriculum will be most useful to instructors.

Strong leadership is required for successful change to occur (Bland et al., 2000). With this adoption process the leader must be prepared to provide a vision for a national

organization. The staff at the National FFA have successfully organized the development and implementation of the curriculum and have a long-range strategic plan for adoption.

In addition, other factors within the adoption process are also necessary. Many studies found encouraging teachers to adopt a new curriculum can be a challenge for a number of reasons. For some instructors there is a period of delay from the time the curriculum is introduced to the instructors, to the time it is adopted (Connors & Elliot, 1994; Lowery, 2000; Rudd & Hillison, 1995; Wingenbach et al., 2000). This delay is natural and should be anticipated.

The adoption rate of many of these studies follows the Rogers (2003) model of adoption innovation. For adoption to occur teachers must see the relative advantage to using the curriculum, they must be able to observe the advantage of using the curriculum, and the curriculum must be compatible with their existing schedule, teaching style and environment. The complexity of the curriculum must be at a level that is challenging to the students, yet relatively simple for the instructor to utilize. Finally, the curriculum must have the ability to be used on a trial basis to determine if it has the ability to integrate with the existing teaching environment and teaching style of the individual teacher. Rogers (2003) defines five adopter categories based on the individual's stage of adopting an innovation.

- Innovators – Active seekers of new ideas, who adopt new ideas quickly, thought to be "on the cutting edge."
- Early Adopters – Individuals who have evaluated the innovation and are quick to adopt it once it meets their approval.
- Early Majority – Individuals that adopt new ideas after thorough evaluation and just prior to an "average" member of the group adopts an idea or innovation.
- Late Majority – Individuals that are skeptical about the innovation and must witness the success of others prior to adopting an idea or innovation themselves.

- Laggards – Individuals who are last to adopt an innovation.

While some instructors are slow to adopt the curriculum, others prefer to use only parts of the curriculum rather than the entire curriculum (Connors & Elliot, 1994; Rudd & Hillison, 1995; Wingenbach et al., 2000). For this reason the curriculum should be designed as 'bite-sized' pieces that it can be incorporated into existing instruction (Leat & Higgins, 2002). This also provides instructors the opportunity to use the curriculum on a trial basis. The 267 lessons of the LifeKnowledge curriculum are designed in such a way that they may be used individually, incorporated into existing courses, or taught as a complete curriculum. This provides a way for instructors to sample a piece of the curriculum without being forced into using the entire curriculum.

Similarly, instructors need to have the freedom to modify the curriculum to meet the needs of the school, community and constituent groups (Bland et al., 2000). This freedom provides ownership of the curriculum by the local instructor, which is essential, because they have the expertise to know what the students can handle and to know how curriculum can best be adapted for use locally (Kirk & MacDonald, 2001; Leat & Higgins, 2002). The LifeKnowledge curriculum offers a generous amount of flexibility to adapt to local needs. Lessons are on a compact disk (CD) and include lesson outlines, scripts, classroom activities, overhead transparency masters, and evaluation tools. From these lesson materials, instructors can choose which materials are best suited for use in their classroom.

Section Summary

This section illustrated that a leadership curriculum is needed for teaching youth leadership in formal classroom environments and, although instructors have the ability to

create their own curriculum, they prefer to use pre-existing materials. In an effort to provide a quality curriculum, the National FFA Organization developed the LifeKnowledge curriculum, which consists of six constructs that strive to develop leadership competencies in youth. The curriculum was written by practitioners of youth leadership instruction and has sufficient flexibility to be used as a stand-alone curriculum or individual lessons may be infused with existing instructional materials.

Many barriers to implementation of the curriculum were addressed. Of great importance to the adoption process is the acknowledgement that instructors adopt curriculum at differing rates. Strategies to be used to assist the adoption process include recognizing and communicating the adoption process to instructors; including instructors in the adoption process; allowing the curriculum to be used as individual lessons rather than as a stand-alone curriculum; giving instructors the freedom to modify the curriculum for their local setting; and providing adequate professional development to support and assist the instructors during the adoption process.

Why High School Agricultural Science Instructors Teach Leadership

Theories of Behavior

To assist in describing and explaining the teaching behavior of agricultural science teachers, a behavior model was sought. Of the many behavioral models available (Bandura, 1986; Becker, 1974; Fishbein & Ajzen, 1975; Fishbein, Bandura, Triandis, Kanfer, Becker, & Middlestadt, 1991; Triandis, 1971), the Triandis model was chosen for this study. This model identifies four explanatory variables of behavior that could be measured: attitude, social norms, habits, and expectancies. A modified Triandis model has been successfully used in an earlier study to describe and explain agricultural science curriculum adoption (Rudd, 1994).

Modified Triandis Model of Behavior

This current study used a variation of the Triandis model that uses four variables to explain behavior: attitude, social norms, habits, and expectations (Rudd & Hillison, 1995). For the purpose of this study, attitude is defined as "a mental position with regard to a fact or state" (Merriam-Webster, 2003) towards leadership.

As defined by Triandis (1971) social norms are what people think they should do (p.14), based upon experiences and beliefs. In the case of agriculture instructors, the fundamental social norm is they are expected to teach. If this is extended to agriculture instructors teaching leadership, we see that instructors are expected to teach leadership. However, what is included within leadership? This may be defined by what agriculture instructors have taught in the past.

Therefore, we may define social norms within in agricultural science leadership as those elements of leadership that should be taught in agriculture. Although no studies could be found that defined the social norms within agricultural leadership, elements of leadership in secondary agricultural education measured by researchers in previous studies include: participation in public speaking, judging contests, chapter banquet planning, committee work, leadership camp, parliamentary procedure, state conventions, national convention, chapter activities, community service, Washington Leadership conference, fundraising, supervised agricultural experience, Program of Activities (POA) planning, public relations, holding FFA office, earning proficiency awards, FFA membership, highest FFA degree held, exhibiting at fairs and shows, working with groups, understanding self, communicating, making decisions, leadership, and creed speaking (Brannon, Holley & Key, 1989; Clark, 1977; Dormody & Seevers, 1994a; Karr,

Keith, Lockaby, & Vaughn, 2001; Ricketts & Newcomb, 1984; Rutherford et al., 2002; Thorp, Cummins, & Townsend, 1998; Townsend & Carter, 1983; Wingenbach, 1995).

When an element of leadership was found in four or more of the studies, it was decided to retain that element as a social norm. Based on the consistencies found in these studies, social norms within agricultural leadership are defined in this study as participation in public speaking, judging contests, chapter banquet, committee work, leadership camp, parliamentary procedure, state conventions, proficiency awards, national convention, program of activities planning, and holding FFA office.

Because these elements of leadership are found in multiple studies it is concluded that these elements are most likely what agricultural science researchers believe are the social norms of secondary agricultural leadership, and as such, are generally the same for each instructor, being "reflected in the current condition of agricultural education" (Rudd, 1994). If they are the same for each instructor, they need not be measured and therefore can be excluded from the behavioral model.

Although these leadership skills described as the social norms are reflected in the current thinking of our agricultural instructors, these are not the leadership skills presented in the LifeKnowledge curriculum. The LifeKnowledge curriculum goes beyond parliamentary procedure and teaches interpersonal skills and intrapersonal skills, skills that allow a person to understand themselves and to understand others as well.

Habits are defined as what a person has usually done (Triandis, 1971) and are based upon experiences, which are influenced by knowledge (Lee, 2000). Likewise, a person's past experiences are a function of their demographics (Taylor, Basen-Engquist, Shinn, & Bodurka, 2004; Variyam, 1999). Therefore, a person's habits are a function of their

knowledge and demographics. In this study, habits will be measured through high school agricultural science instructors' knowledge (Peasley & Henderson, 1992; Rudd, 1994) of leadership concepts and high school agricultural science instructor demographics (Connors & Elliot, 1994).

Expectations are measured as expected benefits, or outcomes, of teaching leadership to students (Mischel & Mischel, 1977; Rudd, 1994). The modified behavioral model is diagrammed below:

f Behavior = Attitude + Knowledge + Demographics + Expectations

Figure 2-2. Theoretical Model of Behavior

This study measured the behavior of high school agricultural science instructors' teaching of leadership in the classroom. Also measured were high school agricultural science instructor attitude towards teaching leadership, high school agricultural science instructor knowledge of leadership, high school agricultural science instructor demographic variables, and high school agricultural science instructor expectations of students after leadership had been taught in the classroom.

Population Studied

The population studied was high school agricultural science instructors from throughout the United States. The population was developed from a list of active FFA chapters provided by the National FFA Organization. Because the LifeKnowledge curriculum is to be distributed nationally, it was important to conduct the study on a national scale so the results could be generalizable to the national population of high school agricultural science instructors.

High School Agricultural Science Instructor Leadership Teaching Behavior

Two methods of determining behavior are self-perceived and observation. Self-perceived behavior is information provided by the participants about their own behavior. Observation is information provided by a researcher who observes the participant and records findings (Ary et al., 1996). This research measured self-perceived high school agricultural science instructor behavior using a series of questions to determine if specific content areas of the LifeKnowledge curriculum were being taught using a self-report form.

Explanatory Variables

This section serves to address research specific to the variables used in this study. These variables are knowledge, attitude, expectations, and demographics.

Knowledge

Using knowledge as a descriptor for teacher behavior has been used successfully. Rudd (1994) found that knowledge alone explained 39% of the variance associated with the behavior of instructor curriculum adoption. This study measured high school agricultural science instructor leadership knowledge based the individual leadership development lessons from unit two of the FFA LifeKnowledge leadership curriculum.

Attitude

Instructor attitude is of great importance as it affects the instructors' teaching and the students in their classrooms (ERIC Clearing House on Tests Measurement and Evaluation, 1985). Instructor attitude has been used in many studies to gather data on a wide range of issues. Osborne and Dyer (1998) measured attitudes of science instructors to determine their perceptions of high school agriculture programs. Likewise, Cano (1990) measured attitudes of male agricultural science instructors towards female

agriculture science instructors. In two separate studies, attitude was found to be an explanatory variable when evaluating instructor attitudes towards curriculum (Peasley & Henderson, 1992; Rudd, 1994). This study measured instructor attitude towards the teaching of leadership.

Expectations

Along with attitudes, instructor expectations may have an effect on their own teaching behavior and student success (Happerlen, Clay, Henly, & Barke, 2002). Instructor expectations of student behavior after leadership instruction were measured in this study.

Demographics

When describing groups of instructors, demographics for each group can be significantly different. Instructors with low effectiveness had significantly different demographics from the instructors with high effectiveness (Miller, Kahler, & Rheault, 1989). Demographics measured by Miller et al. were instructor age, years teaching experience, years at present location, professional organization membership, civic organization membership, and leadership positions held in civic organizations.

When explaining FFA program quality, Vaughn and Moore (2000) found that the demographic characteristics of number of teachers per department and instructor's leadership experiences explained 36% of the variance of program quality. Demographic characteristics measured by Vaughn and Moore were years teaching experience, number of teachers in department, bachelor's degree in agricultural education, master's degree earned, number of teachers pr department, FFA membership in high school, FFA office above chapter level, non-FFA positions held in high school, collegiate organization membership, professional education organization membership, civic organization

membership, state and regional committee participation, agricultural education workshops and seminars conducted, vocational leadership position held in school, and Advisor's Washington Leadership Conference attendance.

When studying curriculum adoption, demographic variables were found to be a significant predictor of adoption (Connors & Elliot, 1994; Rudd, 1994). This exploratory study will analyze individual demographic characteristics to explain instructor leadership teaching behavior.

Section Summary

Modified versions of the Triandis behavior model have successfully been used in the past and offer a simple way to explain behavior with a limited number of variables. The variables used have the ability to be self-reported, which allows this model to be adapted for use with a survey instrument.

The variables selected have provided explanatory ability in previous studies, and were expected to do the same in this study. Knowledge is fundamental in teaching subject matter and providing instructor self-confidence. Attitude has shown to be a strong predictor of instructor performance and the addition of expectations to the model provides a good framework for explaining instructor behavior. In addition, selected demographic variables have been shown to account for a substantial amount of variance in explanatory models.

Chapter Summary

The purpose of this chapter was to describe previous research conducted about how leadership is defined, the importance of teaching leadership, youth leadership development, leadership curriculums for youth, and explaining why instructors teach leadership.

Definitions of leadership were discussed and the importance of teaching leadership to youth was provided. The literature suggests that leadership skills are in high demand by employers and will continue to be so, yet schools have focused on teaching job skills, and have overlooked teaching leadership skills. This has led previous researchers to conclude that leadership training needs to occur in high school.

Youth leadership organizations allow high school youth to develop leadership skills that will benefit them throughout their lives. The National FFA Organization stands out among youth organizations by providing a wide range of opportunities for students to develop leadership skills. It has been well documented that students' participation in FFA activities leads to increased student leadership skill development. Due to the partnership between agricultural education and FFA, the agricultural science classroom is an excellent place to begin building youth for the future through formal classroom teaching of leadership. To accomplish this the National FFA Organization developed the LifeKnowledge curriculum. The curriculum was written by practitioners of youth leadership instruction and has sufficient flexibility to be used alone or with existing materials. Many barriers to implementation of the curriculum were addressed along with methods used to increase the rate of adoption.

To determine why high school agricultural science instructors teach leadership a modified version of the Triandis behavioral model was described. The variables of knowledge, attitude, expectations and demographics have been successfully used to explain instructor teaching behavior, and will be used in this study to explain the extent to which high school agricultural science instructors teach leadership.

CHAPTER 3
METHODS

Chapter 1 provided a brief history of the relationship of agriculture and leadership, then went on to describe the National FFA Organization's role in preparing youth for leadership responsibilities and why leadership is an integral part of agricultural education. Chapter 1 also described the importance of conducting this research.

The purpose of this study was to determine the extent to which high school agricultural science instructors are currently teaching leadership in formal agricultural science classrooms and to explain what influences high school agricultural science instructors to teach leadership in the classroom. To accomplish this, a modified version of the Triandis (1971) behavioral model was used which incorporates knowledge, attitude and expectations to explain behavioral outcomes.

Chapter 2 reviewed previous research conducted about youth leadership and provided a theoretical framework based on Triandis' behavioral model (Ricketts, 2003; Rudd, 1994; Triandis, 1980) from which to build a theoretical model. Areas of review included defining leadership, the importance of teaching leadership, previous research on youth leadership, leadership curriculum for youth, why instructors teach leadership, the theoretical behavior model, and explanatory variables of behavior.

This chapter will describe the research context of the study, research design, research questions, population, sample, instrumentation, procedures used to collect the data, and data analysis.

Context of the Study

Place

The study was conducted via mail and on-line using the Internet, therefore the place of data collection was the classroom, home or other location of the high school agricultural science instructor. The instructors were located in every U.S. state, with the exception of five states in which the curriculum had been pilot tested: Kansas, Maine, Nebraska, New Jersey, and Pennsylvania.

Postal mailings notifying the participants of the survey and required emails were sent from the researcher's office on the University of Florida campus in Gainesville, FL. The survey instruments used were both paper and pencil, and on-line forms. The paper and pencil instrument consisted of an eight-page questionnaire mailed to the participants. The on-line instrument consisted of web pages and web forms, loaded on a World Wide Web file server located on the University of Florida campus. Data collected from the paper and pencil instrument were entered manually by the researcher. Data collected from the on-line instrument were sent to a text file on the file server and simultaneously emailed to the researcher. Data analyses, conclusions, and recommendations were completed at the University of Florida.

Time

Preliminary instrument development began on October 21, 2002. A preliminary instrument was completed on January 29, 2004. A panel of experts, consisting of the researcher's committee reviewed the instrument and suggested additions and corrections that should be made to the instrument. Based on the panel's comments, modifications were made to the instrument. The pilot study was administered to a sample of high school agricultural science instructors from Nebraska on February 26, 2004. Data

analysis from the pilot study was conducted and revisions to the instrument were made on March 31, 2004.

The national survey began on April 5, 2004. Final data collection was completed on May 17, 2004. Data were then analyzed beginning on May 17, 2004. The entire study was conducted between February 26, 2004 and May 17, 2004.

National FFA Organization

The National FFA Organization was instrumental in the development of this study. The LifeKnowledge curriculum developed by the FFA provided the leadership content areas with which this study was framed. In addition, the National FFA Organization provided a comprehensive list of high school agricultural science programs from across the United States from which the sample was derived.

Research Design

The study was conducted using survey research, and a correlational, *ex post facto* design. A correlational design involves the collection of two or more sets of data from a group of subjects with the attempt to determine the subsequent relationship between those sets of data (Tuckman, 1994). *Ex post facto* is a study in which the researcher examines the effects of a naturally occurring treatment after the treatment has occurred. The researcher relates the after-the-fact treatment to an outcome or dependent measure (Tuckman, 1994).

The dependent variable measured was instructor leadership teaching behavior as determined by the level of formal leadership instruction taught in the high school agricultural science classroom. Independent variables measured were instructor leadership knowledge, instructor attitude towards teaching leadership, instructor expectations after teaching leadership to students, and instructor demographics. The

measures of instructor behavior, instructor knowledge and instructor expectations were developed using lesson objectives in unit two of the LifeKnowledge curriculum (National FFA Organization, 2003). These variables will be discussed in more detail in the instrumentation section.

Research Objectives

Much research has been done regarding youths' self-perception of their own leadership ability and skill (Rutherford et al., 2002; Seevers & Dormody, 1995; Townsend & Carter, 1983; Wingenbach, 1995). Yet, little research has been conducted on instructor teaching behavior. Additionally, the author could find neither research that quantified the amount of leadership being taught in agricultural science classrooms nor research that addressed the factors that influence instructors to teach leadership. This study sought to address the following research objectives:

- Determine the demographic characteristics of high school agricultural science instructors;
- determine the extent to which leadership is being taught in high school agricultural science classrooms;
- based on National FFA LifeKnowledge leadership curriculum, determine high school agricultural science instructor leadership knowledge;
- determine high school agricultural science instructor attitude towards teaching leadership;
- determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught; and
- explain the relationship between high school agricultural science instructor leadership knowledge, high school agricultural science instructor attitude towards teaching leadership, high school agricultural science instructor expectations of students, and high school agricultural science instructor demographics in light of high school agricultural science instructor leadership content area teaching behavior.

Population

The population for the study was all FFA advisors at high school agricultural science programs (National FFA Organization, 2002) with the exception of FFA advisors in five states where the curriculum had been pilot tested: Kansas, Maine, Nebraska, New Jersey, and Pennsylvania. The programs were identified through the National FFA Organization.

Sample

Nationally, there are 7,193 high school agricultural science programs (National FFA Organization, 2002). A 95% confidence level with 5% sampling error was chosen for this study. Based on sample size information from Dillman (2000), a sample size of 367 was required for a population of 8,000. The confidence level and sampling error are contingent upon receiving 367 usable responses. To account for incorrect addresses, inactive programs, etc. a sample size of 400 was chosen. Using a list of active FFA chapters provided by the National FFA Organization, 400 participants were selected by simple random sample selection (Agresti & Finlay, 1997). To accomplish this, that Active Chapter List was entered into an Excel® file. Random numbers were assigned to each chapter in the sample frame and sorted. The first 400 chapters of the sorted list were used in the study.

Instrumentation

The instrument was designed to measure the level of leadership taught in the agricultural science classroom, the attitude of the instructor towards the teaching of leadership, the leadership knowledge of the instructor, demographic information of the instructor, and instructor expectations of students after leadership had been taught in the classroom (see Appendix A).

Instructor leadership knowledge and the constructs of level of leadership being taught, instructor attitude towards teaching leadership, and instructor expectations of agricultural students were framed with the LifeKnowledge curriculum developed by the National FFA Organization (2003). Level of leadership instruction and leadership knowledge questions used in the instrument were based on lessons from unit two of the LifeKnowledge curriculum. This unit included elements from all six content areas of the LifeKnowledge curriculum and covers a broad mix of leadership concepts. A series of demographic questions were asked to gather information about the instructor (Miller et al., 1989; Vaughn & Moore, 2000).

Section I of the instrument measured the teaching of leadership content areas contained in unit two of the LifeKnowledge curriculum (see Appendix A). Using a series of 30 statements, the high school agricultural science instructor was asked if they taught leadership by indicating either *yes* they taught the particular concept or *no* they did not teach the concept (Connors & Elliot, 1994; Rudd & Hillison, 1995). The instrument was developed as a paper and pencil instrument and as a web page for use on the Internet (see Appendix B). Answers for the web-based instrument were indicated by using the computer mouse to click on a "radio button" to indicate their answer using the dichotomous scale.

Section II of the instrument measured high school agricultural science instructor expectations of the student for each of the leadership content areas in unit two of the LifeKnowledge curriculum (see Appendix A). Eighteen expectation statements were provided and a dichotomous scale was used to record the participant's responses, *yes* if

they expected the student to perform the action, or *no* if they did not expect the student to perform the action (Rudd & Hillison, 1995).

Section III of the instrument measured the leadership knowledge of the instructors (see Appendix A). Thirty questions from the lesson objectives and evaluation tools found in unit two of the LifeKnowledge curriculum were used (National FFA Organization, 2003). Questions were in the form of true-false and multiple-choice. Curriculum defined knowledge content areas measured were values, beliefs, responsibility and accountability, character, leader, vision, influence, motivation, risk taking, self-worth, character, time management, goal setting, and mentors.

Section IV of the instrument measured the high school agricultural science instructor's attitude towards teaching leadership using a semantic differential technique consisting of 12 pairs of words (see Appendix A). A scale consisting of six spaces or radio buttons placed between the words was provided to indicate level of agreement with one of each of the pair of words. The pairs of words used were necessary/unnecessary, boring/interesting, positive/negative, practical/impractical, useful/useless, helpful/not helpful, wanted/unwanted, not worthwhile/worthwhile, valuable/worthless, successful/unsuccessful, wise/foolish, and bad/good. Word pairs were determined using established pairs of terms (Jenkins, Russell, & Suci, 1958; Rudd, 1994).

Section V of the instrument addressed demographic questions about the high school agricultural science instructor (see Appendix A). Questions asked were school location, highest level of education, gender, if they had been certified through a university agriculture teacher certification program, was their bachelor degree in agricultural education, FFA membership in high school, FFA chapter officer in high school, FFA

office above chapter level, age, years teaching agriculture, years teaching in current position, number of agriculture teachers at school, number of leadership courses taken in college, number of offices held in student leadership organizations other than FFA, offices held in college student organizations, offices held in professional education organizations, number of offices held in civic organizations, membership in professional development organizations, number of offices held in professional development organizations, participation on state or regional agricultural science committees, number of workshops or seminars conducted for agriculture teachers, number of workshops or seminars conducted for non-agriculture teachers, number of leadership positions held in local school or vocational department, number of times they attended the Advisors' Washington Leadership Conference, and if a leadership course was taught in their agricultural science program (Miller et al., 1989; Vaughn & Moore, 2000).

The instrument was checked for validity by a panel of experts consisting of the researcher's committee members.

Procedures

Procedures used to collect the data are included in this section of the chapter. This includes a description of the pilot study, and the survey, including notification of participants, follow up contacts, etc.

Pilot Study

To pilot test the instrument, subjects (n =40) were selected at random from the Nebraska FFA chapters on the FFA Active Chapter List. A modified version of the Tailored Design Method (Dillman, 2000) was used for data collection. A pre-notice letter was sent on February 26, 2004 notifying the pilot sample that they had been selected to participate in this survey. Instructions were provided as to how they could

access the study via the Internet. Three days later, March 1, 2004, a paper form of the instrument was sent to the participants. Seven days later, on March 8, 2004, a thank you/reminder postcard was sent to the participants. Seven days later March 15, 2004, a replacement questionnaire was sent to participants that had not yet responded. Seven days later March 22, 2004, a personal contact was made with non-respondents by a colleague in Nebraska, encouraging them to complete the questionnaire. Nine additional days were allowed for collection of electronic and mailed paper responses. Twenty pilot instruments were returned for a pilot response rate of 50%.

Pilot instrument reliability was analyzed using SPSS® to determine Coefficient alpha based on the three instrument constructs. From these results, the following changes were made to the instrument:

Section I which measured the teaching of leadership content areas, had a reliability of alpha=0.92. Two questions were removed to increase the reliability to alpha=0.93.

Section II which measured instructor expectations of the student, had a reliability of alpha=0.79. Eight questions were removed to increase the reliability to alpha=0.81.

Section IV which measured instructor attitude toward teaching leadership, had a reliability of alpha=0.91. No changes were made to this portion of the instrument.

Data Collection Procedures

A modified version of the Tailored Design Method (Dillman, 2000) was used for data collection from the sample. A pre-notice letter (see Appendix C) was sent on April 5, 2004 notifying the sample that they had been selected to participate in this survey. Instructions were provided as to how they could access the study via the Internet. Four days later, April 9, 2004, a paper form of the instrument (see Appendix A), that included the IRB informed consent form (see Appendix C), was sent to the participants. Ten days

later, on April 19, 2004, a thank you/reminder postcard was sent to the participants (see Appendix C). Ten days later April 29, 2004, a replacement questionnaire was sent to participants that had not yet responded (see Appendix C). Eight days later May 7, 2004, phone calls were placed to non-respondents encouraging them to complete the questionnaire. Ten additional days were allowed for collection of electronic and mailed paper responses. Thank you postcards were mailed to all respondents acknowledging receipt of their questionnaire and thanking them for their participation in the study. The postcard also provided the respondents with an Internet address where the results of this research could be located.

Response Rate

The final response rate for the study was 41.8% (*n*=167). This response rate appears to be low, but this may be influenced by a number of factors. First, it may be indicative of a trend in agricultural education. A review of studies in the Journal of Agricultural Education that sampled agriculture teachers shows response rates have been declining over the past 14 years (Balschweid & Thompson, 2002; Birkenbolz & Maricle, 1991; Boone, Gartin, Wright, Lawrence, & Odell, 2002; Conroy & Walker, 2000; Croom, 2003; Delnero & Montgomery, 2001; Dormody, 1993; Dormody, Seevers, & Clason, 1996; D. W. Duncan, 2004; Eaton & Bruening, 1996; Elbert, 2003; Fraze, Hardin, Brashears, Haygood, & Smith, 2003; Harris & Birkenbolz, 1996; Kotrlik & Drueckhammer, 1987; Kotrlik, Redmann, & Douglas, 2003; Layfield & Dobbins, 2002; Myers, Dyer, & Breja, 2003; Rogers, Townsend, & Lindner, 2004; Thobega & Miller, 2003; Thomas & Groves, 1986; Whent, 1994). When response rates are averaged for each decade, and separated into the categories of national study, regional study, and state

study, a downward trend occurs. Response rates for national studies, averaged by decade, have declined from 84.4% in the 1980's to 57.9% currently.

Another cause of the low response rate may be the time of the year. Follow up phone calls to the 320 instructors that had not responded after the third mailing revealed that many instructors were busy with spring activities such as livestock shows, banquets, final exams, inputting grades, etc. Many stated they had been too busy to complete the form. When instructors were asked if emailing a web link to the web based questionnaire would be helpful, most instructors stated that they would be more likely to complete the questionnaire if a link were sent to them.

Finally, even with a response rate below 50%, this is higher than what is expected in many disciplines. Response rates in education, marketing, and applied health typically range from 1% to 31% (Fox, Robinson, & Boardley, 1998), while business marketing survey research rates are usually below 15% (Wilson, 1999). At the same time, response rates from healthcare organizations range from 8.2% to 24.8% (Hikmet & Chen, 2003). Even more dramatic are the response rates found in direct mail, which are typically 1% to 10% (Response Rates, 2000; Souccar, 2000; Teichgraeber, 2001).

Based on this information, the response rate of the current study is reasonable for this population, and is above the expectations of some disciplines. Based on the sample size formula in Dillman (2000), the 167 responses of this study allow the results to have a 95% confidence level with 7.5% sampling error.

Data Analysis

Data were collected via paper and pencil questionnaires (see Appendix A) and the Internet using the on-line instrument (see Appendix B). Data from the paper and pencil instruments were entered into a Microsoft® Excel® spreadsheet by the researcher. Data

from the Internet-based instrument were stored in a comma delimited text file on the University file server and sent as an email to the researcher. The text file containing all of the data was converted to a Microsoft® Excel® spreadsheet. The data from the pencil and paper version and the electronic version of the instrument were combined in Excel®, then imported to Statistical Package for the Social Sciences for Windows™ (SPSS®) version 12.0 for analysis.

To control for non-response bias a t-test was used to compare early respondents to late respondents (Miller & Smith, 1983). Early respondents (n=130) were compared with late respondents (n=37). Independent sample t-tests were conducted on each variable of interest and no significant differences were found between early and late respondents.

Likewise, a t-test was conducted to compare participants that responded using the paper and pencil instrument sent in via the mail and the participants that responded using the Internet web-form. Paper and pencil respondents (n=96) were compared with Internet respondents (n=71). Independent sample t-tests were conducted on each variable of interest and no significant differences were found between pencil and paper, and Internet respondents.

The instrument post-hoc reliability was analyzed using SPSS by computing an alpha coefficient for each of the three measured constructs. Instrument reliability was analyzed using SPSS® to determine Coefficient alpha based on the three instrument constructs. Section I which measured the teaching of leadership content areas, had a reliability of alpha=0.95. Section II which measured instructor expectations of the student, had a reliability of alpha=0.84. Section IV which measured instructor attitude toward teaching leadership, had a reliability of alpha=0.92.

Descriptive statistics and frequencies were compiled from the data. Previous studies summed leadership and demographic variables (Vaughn & Moore, 2000) and provided insufficient explanation for how they had been coded (Miller et al., 1989). Due to this lack of information regarding the relationships of the variables used in this study, it was decided to conduct correlations on all variables for this exploratory study. For correlational and regression analysis the variable gender was coded as a dichotomous dummy variable, 1=male; 0=female. The following variables were also coded as dummy variables, 1=yes; 0=no: rural school location, suburban school location, urban school location, certified through a university agriculture teacher certification program, bachelor degree in agricultural education, FFA member in high school, FFA chapter officer, FFA officer above chapter level, and leadership course taught in agricultural science program. Pearson's Product Moment correlation was performed with all of the variables to determine relationships. Magnitude of correlations will be described using the terms discussed by Miller (1998) (see Table 3-1). Variables having the greatest correlation with instructor teaching behavior were selected for use in regression analysis. Backwards multiple regression analysis was performed to determine relationship and explanatory qualities of the data. Regression models were analyzed for significance and explanatory qualities. An alpha level of 0.05 was set *a priori* for the statistical analysis. Results of this analysis are presented in chapter four of this study.

Table 3-1. Correlation Magnitude Descriptors

r	Descriptor
1.0	Perfect
0.70 – 0.99	Very high
0.50 – 0.69	Substantial
0.30 – 0.49	Moderate
0.10 – 0.29	Low
0.01 – 0.09	Negligible

From Miller, L. (1998). Appropriate analysis. *Journal of Agricultural Education 39*(2), 1-10.

Summary

This chapter described the methods used to research the current level of leadership taught in agricultural science classrooms and factors associated with describing and explaining the instructional behavior of leadership with high school agricultural science instructors.

This is a descriptive study using *ex post facto* and correlational designs to reveal relationships and explain instructor teaching behavior. The development and analysis of the instrument were discussed and methods used for data collection were provided. Data were collected from n=167 high school agricultural science instructors located throughout the United States. Statistical analyses performed on the data were described in this chapter. Chapter four discusses the findings of this study.

CHAPTER 4
RESULTS

Chapter 1 provided a brief history of the relationship of agriculture and leadership then went on to describe the National FFA Organization's role in preparing youth for leadership responsibilities and why leadership is an integral part of agricultural education. Chapter 1 also described the necessity of conducting this research.

The purpose of this study was to determine the extent to which high school agricultural science instructors are currently teaching leadership in formal agricultural science classrooms and explain what influences agricultural science instructors to teach leadership in the classroom. To accomplish this, a modified version of the Triandis (1971) behavioral model was used, which incorporates knowledge, attitude and expectations to explain behavioral outcomes. Specifically this study sought to:

- Determine the demographic characteristics of high school agricultural science instructors;
- determine the extent to which leadership is being taught in high school agricultural science classrooms;
- based on National FFA LifeKnowledge leadership curriculum, determine high school agricultural science instructor leadership knowledge;
- determine high school agricultural science instructor attitude towards teaching leadership;
- determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught; and
- explain the relationship between high school agricultural science instructor leadership knowledge, high school agricultural science instructor attitude towards teaching leadership, high school agricultural science instructor expectations of

students, and high school agricultural science instructor demographics in light of high school agricultural science instructor leadership content area teaching behavior.

Chapter 2 reviewed previous research conducted about youth leadership and provided a theoretical framework, based on Triandis' behavioral model (Ricketts, 2003; Rudd, 1994; Triandis, 1980), from which to build a behavioral model. Areas of review included defining leadership, the importance of teaching leadership, previous research on youth leadership, leadership curriculum for youth, why instructors teach leadership, the theoretical behavior model, and explanatory variables of behavior.

Chapter 3 described the methods used to discover the current level of leadership taught in agricultural science classrooms and factors associated with describing and explaining the instructional behavior of leadership with high school agricultural science instructors.

This is a descriptive study using *ex post facto* and correlational designs to reveal relationships and explain instructor teaching behavior. The development and analysis of the instrument were discussed and methods used for data collection were provided. Usable responses were collected from 167 high school agricultural science instructors located throughout the United States and the statistical analyses that were performed on the data were described.

This chapter will explain the findings of this study, addressing each objective presented in chapter 1. For correlational comparisons, dichotomous variables were coded as dummy variables. Similarly, for correlational comparisons in multiple regression, the variables number of agriculture instructors at the school and size of community in which the school was located were coded as a series of dummy variables.

Objective One: Determine the Demographic Characteristics of High School Agricultural Science Instructors

The average high school agricultural science instructor in this study is 39.37 years old, has been teaching for 14.85 years, and has been teaching at their current location for 10.61 years. Most instructors are male, teach in a one-instructor department, and their school is located in a rural community. Most earned their bachelor's degree in agricultural education and were certified through a university agriculture teacher education program. In addition, most instructors were FFA chapter officers in high school. Specific characteristics and experiences of the participants of this study are presented later in this chapter.

Age, Years Teaching, and Years Teaching in Current Position

The age of the participants ranged from 23 to 61, with an average age of M=39.37 years. The number of years teaching for participants ranged from one to 38, with an average of M=14.85. The number of years teaching in their current position ranged from one to 34, with an average of M=10.61 (see Table 4-1).

Table 4-1. Participant Mean Age, Years Teaching, and Years Teaching in Current Position (n=167)

	n	M	SD	Minimum	Maximum
Age	157	39.37	10.31	23	61
Years teaching	158	14.85	10.16	1	38
Years teaching in current position	158	10.61	8.87	1	34

The distribution of participant age is shown in Figure 4-1. The distribution shows a group of participants from age 23 to age 33, then another group from age 35 to age 58. These two groups form somewhat of a bimodal distribution. When a normal curve is superimposed on top of the distribution, it appears slightly skewed left.

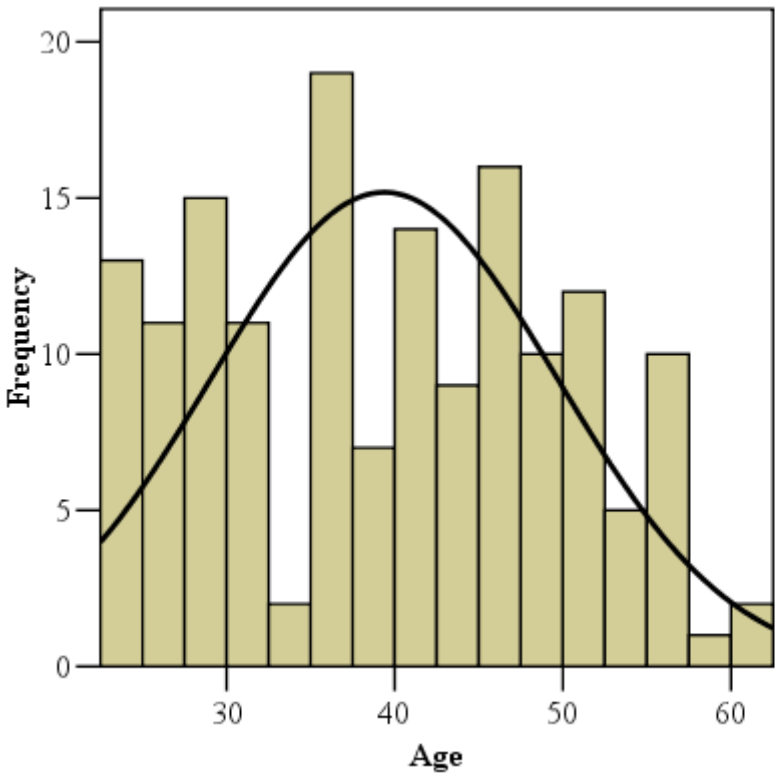


Figure 4-1. Distribution of Participant Age

The distribution for years teaching (Figure 4-2) is similar in that it too is skewed left. Once again there is a cluster of instructors with teaching experience from zero to eight years, then a decline in tenure, tapering off to the right.

Figure 4-3 illustrates the distribution of participants' years in current position. This distribution is more skewed to the left than the previous two figures, but contains similar features. The large group of instructors from zero to eight years is seen, and then a decline occurs as tenure increases.

Previous research revealed correlations with age (Miller et al., 1989). When Pearson's Product Moment correlations were conducted to determine relationships with age (see Table 4-2), moderate correlations were found with gender (r=0.39), number of

leadership positions held in local school or vocational department (*r*=0.35), and number of offices held in professional education organizations (*r*=0.30).

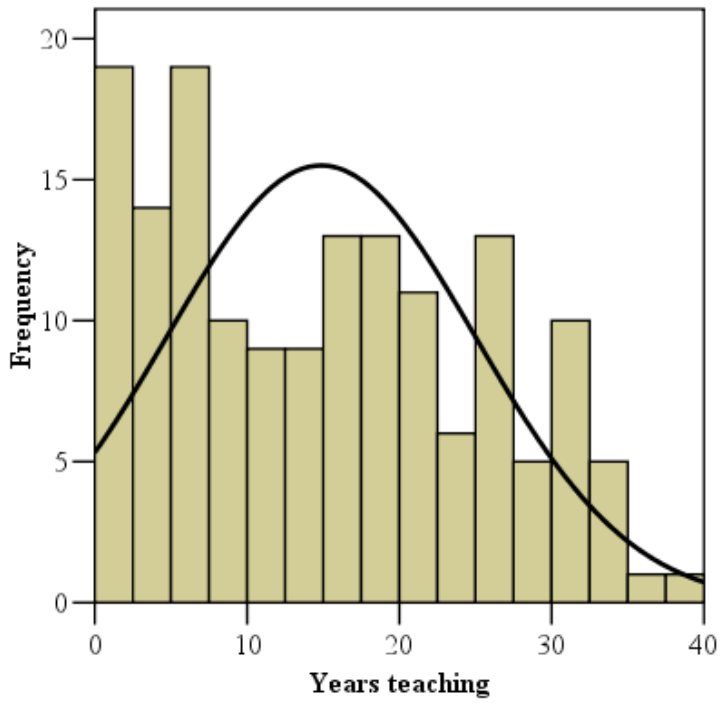


Figure 4-2. Distribution of Participants' Years Teaching

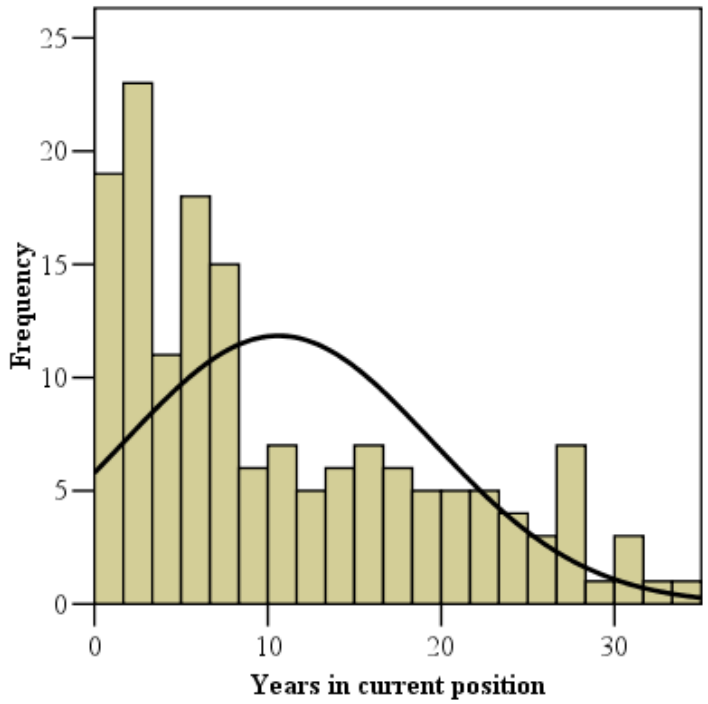


Figure 4-3. Distribution of Participants' Years Teaching in Current Position

Table 4-2 shows moderate correlations which occurred between years teaching and gender (r=0.43), number of offices held in professional education organizations (r=0.37), and number of leadership positions in local school or vocational department (r=0.39).

Number of years teaching in current position (see Table 4-2) had moderate relationships with number of offices held in civic organizations (r=0.40), gender (r=0.37) number of workshops and seminars for agriculture teachers (r=0.32), and level of education (r=0.31). Additional correlations for age, years teaching, and years teaching in current position are shown in Appendix D, Table D-1.

Table 4-2. Pearson's Product Moment Correlations Between Age, Years Teaching, Years Teaching in Current Position, and Selected Variables (n=157)

Variable	Age	Years Teaching	Years Teaching in Current Position
Gender[2]	0.39*	0.43*	0.37*
Number of leadership positions held in local school or vocational department	0.35*	0.39*	0.25*
Number of offices held in professional education organizations	0.30*	0.37*	0.40*
Number of offices held in civic organizations	0.25*	0.32*	0.19*
Number of workshops and seminars for agriculture teachers	0.25*	0.29*	0.32*
Level of education	0.18*	0.25*	0.31*
Age	--	0.91*	0.69*
Years teaching	--	--	0.80*

Notes: * = p<0.05; [1] = Yes coded as 1, No coded as 0; [2] = Males coded as 1, Females coded as 2.

Gender

Males comprised 73.1% (n=114) of the sample. An independent groups t-test was conducted to determine if any significant differences existed between the female and male participants. Significant gender differences were found in the variables age t(153)=5.26, years teaching t(154)=5.90, and years teaching in current position t(154)=4.90. The results of this test are presented in Table 4-3.

Table 4-3. Independent Groups t-test for Significant Variables by Gender (n=167)

Variable	t	df
Age	5.26*	153
Years teaching	5.90*	154
Years teaching in current position	4.90*	154
Certified through a university agriculture teacher education program	2.77*	154
Bachelor degree in agricultural education	2.46*	153
Number of offices held in high school organizations outside of FFA	-2.35*	153
Number of offices held in professional education organizations	2.42*	153
Number of offices held in civic organizations	2.38*	152
Number of offices held in college organizations	-2.22*	154
Leadership course taught in agricultural science program	2.00*	151

Note: *=p<0.05

Previous research did not investigate the influence of gender on instructor behavior. Because gender had not been researched as an explanatory variable in the past studies (Miller et al., 1989; Vaughn & Moore, 2000), it was decided to conduct correlations using this variable. Correlations were conducted for gender (see Table 4-4), with males coded as one and females coded as zero. The analysis revealed moderate correlations with years teaching (r=0.43), age (r=0.39), and years teaching in current position (r=0.37).

Number of Instructors at School

The number of agriculture instructors at the school ranged from one to six, with an average of M=1.56 instructors per department. Of the 156 participants that responded to this question, 59.0% (n=92) were located in one-instructor departments and 32.1% (n=50) were in two-instructor departments (see Table 4-5).

Table 4-4. Pearson's Product Moment Correlations between Gender and Selected Variables (n=156)

Variable	Gender[2]
Years teaching	0.43*
Age	0.39*
Years in current teaching position	0.37*
Instructor leadership teaching behavior	0.23*
Certified through a university agriculture teacher education program[1]	0.22*
Bachelor degree in agricultural education[1]	0.20*
Number of offices held in professional education organizations	0.19*
Number of offices held in civic organizations	0.19*
Four or more instructor department[1]	0.18*
Leadership course taught in agricultural science program[1]	0.16*
Number of offices held in high school organizations outside of FFA	-0.19*
Number of offices held in college organizations	-0.18*

Note: *=p<0.05; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Table 4-5. Number of agricultural science instructors at school (n=156)

	n	%
One-instructor school	92	59.0
Two-instructor school	50	32.1
Three-instructor school	8	5.1
Four-or-more instructor school	6	3.8

Figure 4-4 shows the distribution of the number of agriculture instructors in school. The curve is skewed left, illustrating the large number of one-instructor and two-instructor agricultural science departments.

Relationships with number of agricultural science instructors in school shows a negative, moderate correlation with rural school location (r=-0.34) and a positive, moderate correlation with suburban school location (r=0.31), indicating that as the school location becomes more urban (i.e. less rural), the number of agriculture instructors at a school increases (see Table 4-6).

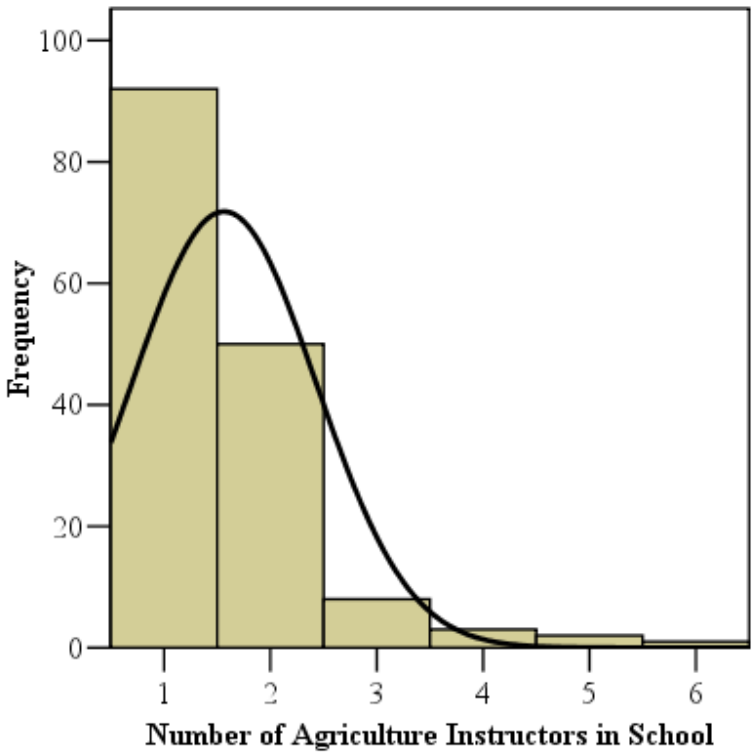


Figure 4-4. Distribution of Number of Agriculture Instructors in School

Participants located in four-or-more instructor departments (see Table 4-6) had a moderate correlation with number of offices held in high school organizations outside of FFA (r=0.42). This reveals that participants teaching at schools with over three agriculture instructors were more likely to have participated in high school organizations outside of FFA, than were the participants teaching at schools with fewer instructors. Additional correlations with number of instructors at school can be found in Appendix D, Table D-2.

School Location

Participants were asked to describe the location of the community in which their school was located. Table 4-7 shows 73.4% (n=113) indicated their school was in a rural community, consisting of a population under 10,000 (Pennsylvania State University,

2004; U.S. Census Bureau, 2004; Wingenbach, 1995). For determining correlational relationships, the locations of rural, suburban, and urban were coded as dichotomous dummy variables.

Table 4-6. Pearson's Product Moment Correlations between Number of Instructors at School and Selected Variables (*n*=156)

Variable	Number of Agricultural Science Instructors	One Instructor	Two Instructor	Three Instructor	Four or More Instructors
Rural school location [1]	-0.34*	0.27*	-0.05	-0.22*	-0.23*
Suburban school location[1]	0.31*	-0.20*	0.03	0.16	0.19*
Location of school	0.28*	-0.24*	0.05	0.21*	0.20*
Number of workshops and seminars for non-agriculture teachers	0.21*	-0.19*	0.04	0.26*	0.20*
Number of offices held in high school organizations outside of FFA	0.20*	-0.11	-0.04	0.11	0.42*
Level of education[1]	0.18*	-0.15	0.01	0.22*	0.05
Instructor leadership teaching behavior	0.13	-0.12	0.04	0.18*	0.07
Number of agricultural science instructors in school	--	-0.78*	0.35*	0.39*	0.40*
One instructor department[1]	--	--	-0.81*	-0.28*	-0.17*
Two instructor department[1]	--	--	--	-0.16*	-0.10
Three instructor department[1]	--	--	--	--	-0.03

Notes: *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

Table 4-7. Location of school (*n*=154)

Location	*n*	%
Rural (<10,000)	113	73.4
Suburban (10,000-49,999)	25	16.2
Urban (>49,000)	16	10.4

Pearsons' Product Moment correlations produced strong correlations between the dichotomous location variables and the parent variable location. All other relationships were low (see Table 4-8). It is interesting to note that the relationships between FFA involvement and school location, although low in magnitude, reveal that instructors at

rural schools were more likely to have been involved in FFA than were the instructors at urban schools. In addition, instructors in urban schools were less likely to have earned their bachelor's degree in agricultural education, revealing that many urban instructors have a technical specialization outside of agricultural education.

Table 4-8. Pearson's Product Moment Correlations between School Location and Selected Variables (*n*=154)

Variable	Location	Rural[1]	Suburban[1]	Urban[1]
Rural school location[1]	-0.93*	--	-0.73*	0.57*
Urban school location[1]	0.84*	--	--	--
Suburban school location[1]	0.42*	--	--	-0.15
FFA chapter officer[1]	-0.25*	0.24*	-0.12	-0.20*
Number of workshops and seminars for non-agriculture teachers	0.24*	-0.17*	-0.03	0.28*
Bachelor degree in agricultural education[1]	-0.23*	0.22*	-0.12	-0.18*
FFA member in high school[1]	-0.22*	0.22*	-0.12	-0.17*
FFA officer above chapter level[1]	-0.16*	0.17*	-0.12	-0.10
Instructor leadership teaching behavior	0.13	-0.06	-0.08	0.19*

Note. *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

Educational Background

When asked to indicate their highest level of education, 50.6% (*n*=80) of the participants held a masters degree (see Table 4-9). When asked to indicate if they were certified through a university agricultural teacher certification program, 96.8% (*n*=153) had been certified through a university agriculture teacher education program, and 85.4% (*n*=134) stated their bachelor degree was in agricultural education.

Table 4-9. Educational Background (*n*=158)

	n	%
Less than a bachelor degree	3	1.9
Bachelor degree	75	47.5
Masters degree	80	50.6
Certified through a university agriculture teacher certification program	153	96.8
Bachelor degree in agricultural education	134	85.4

Pearson's Product Moment correlations revealed a moderate relationship between level of education and number of offices held in professional education organizations

(r=0.31) (see Table 4-10). Relationships with the variable bachelor degree in agricultural education include two moderate correlations, the first with FFA member in high school (r=0.40) and the second with FFA chapter officer (r=0.36).

FFA Involvement

Table 4-11 presents the participants' FFA involvement. Of the participants, 86.1% (n=136) stated they had been FFA members, and 75.9% (n=120) had been an FFA chapter officer.

Table 4-10. Pearson's Product Moment Correlations Between Educational Background and Selected Variables (n=157)

Variable	Level of Education	Certified through a University Agriculture Teacher Education Program [1]	Bachelor Degree in Agricultural Education [1]
Certified through a university agriculture teacher education program[1]	0.10	--	--
Bachelor degree in agricultural education[1]	-0.03	0.23*	--
Number of offices held in professional education organizations	0.31*	0.13	0.07
Number of offices held in civic organizations	0.16*	0.02	0.06
Gender[2]	0.15	0.22*	0.20*
Leadership course taught in agricultural science program[1]	0.09	0.17*	0.21*
FFA chapter officer[1]	0.07	0.07	0.36*
Instructor expectations after leadership has been taught	0.07	0.17*	0.20*
Instructor attitude towards the teaching of leadership	-0.06	0.16*	0.06
Instructor leadership teaching behavior	-0.03	0.09	0.09
FFA member in high school[1]	0.03	0.14	0.40*
Number of leadership courses taken in college	0.03	0.01	0.16*
Membership in professional development organizations	-0.02	- 0.01	0.18*

Note. *=p<0.05; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Table 4-11. FFA Involvement (*n*=158)

	n	%
FFA member in high school	136	86.1
FFA chapter officer	120	75.9
FFA officer above chapter level	52	33.1

Most instructors were FFA members in high school, however Table 4-12 shows that FFA membership had a negligible relationship to instructor leadership teaching behavior. A moderate relationship was found between holding an FFA office above chapter level and number of offices held in college organizations (*r*=0.31).

Table 4-12. Pearson's Product Moment Correlations between FFA Involvement and Selected Variables (*n*=158)

Variable	FFA Member[1]	FFA Chapter Officer [1]	FFA Officer above Chapter Level [1]
FFA member in high school[1]	--	0.72*	0.25*
FFA chapter officer[1]	--	--	0.33*
Number of offices held in college organizations	0.20*	0.22*	0.31*
Age	-0.17*	-0.16*	-0.20*
Number of leadership positions in local school or vocational department	-0.17*	-0.12	-0.10
Number of offices held in high school organizations outside of FFA	0.08	0.15	0.16*
Instructor leadership teaching behavior	0.05	-0.01	-0.04

Note. *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

High School and College Leadership Activities

High school and college leadership activities of participants are listed in Table 4-13. Of the participants, 74.1% (*n*=117) held offices in high school organizations outside of FFA. In terms of college leadership activities, 73.1% (*n*=114) had taken one or more college leadership courses and 67.3% (*n*=107) held one or more offices in college organizations.

Table 4-13. High School and College Leadership Activities of Participants

	n	M	SD	Minimum	Maximum
Number of offices held in high school organizations outside of FFA	158	2.72	3.18	0	20
Number of leadership courses in college	156	1.67	1.62	0	10
Number of offices held in student organizations at the college level	159	1.83	2.15	0	15

Correlations in Table 4-14 reveal that number of offices held in high school organizations outside of FFA had a substantial relationship with number of offices held in college organizations (r=0.52), and a moderate relationship between number of offices in college organizations and holding FFA office above chapter level (r=0.31). An interesting finding is the relationship of these variables to instructor leadership teaching behavior. Number of leadership courses taken in college had a low relationship with instructor leadership teaching behavior, while negligible relationships were found with number of offices in high school organizations outside of FFA and number of offices in college organizations. These findings indicate these leadership activities had little influence on the amount of leadership taught in the agricultural science classroom. Additional correlations can be found in Appendix D, Table D-4.

Professional and Civic Organization Leadership Experience

Participant experience in professional and civic organizations is shown in Table 4-15. The number of offices held in professional education organizations ranged from zero to 15, with an average of M=2.03 offices per instructor. Of these participants, 51.9% (n=82) held one or more offices. Similarly, 79.2% (n=126) of the participants had membership in at least one professional development organization, and 36.1% (n=57) of the participants held an office in a professional development organization. When looking

at how many offices were held in civic organizations, 58.0% (*n*=91) of the participants held one or more offices.

Table 4-14. Pearson's Product Moment Correlations between High School and College Leadership Activities and Selected Variables (n=158)

Variable	Number of Leadership Courses in College	Number of Offices in High School Organizations	Number of Offices in College Organizations
Number of offices held in college organizations	0.14	0.52*	--
Leadership course taught in agricultural science program[1]	0.28*	-0.03	0.07
Instructor leadership teaching behavior	0.22*	0.09	0.07
Three-instructor department[1]	0.21*	0.11	0.23*
Membership in professional development organizations	0.13	0.23*	0.14
Number of regional or state agricultural education committees participated in	-0.10	0.15	0.19*
FFA member in high school[1]	0.10	0.08	0.20*
FFA chapter officer[1]	0.09	0.15	0.22*
Number of workshops and seminars for non-agriculture teachers	0.07	0.24*	0.16*
FFA officer above chapter[1]	-0.06	0.16*	0.31*
Four or more instructor department[1]	-0.06	0.27*	0.10

Note. *=$p<0.05$; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Table 4-15. Number of Offices Held in Professional and Civic Organizations

	n	M	SD	Minimum	Maximum
Number of offices in professional education organizations	158	2.03	2.93	0	15
Membership in professional development organizations	159	2.16	1.77	0	8
Number of offices held in professional development organizations	158	0.68	1.14	0	6
Number of offices in civic organizations	157	1.65	2.52	0	17

Pearson's Product Moment correlations, shown in Table 4-16, revealed moderate correlations between offices in professional education organizations and number of regional or state agricultural education committees participated in (r=0.46), years in

current teaching position (r=0.40), years teaching (r=0.37), number of workshops and seminars for agriculture teachers (r=0.33), level of education (r=0.31), and age (r=0.30). Offices in civic organizations had moderate relationships with number of offices held in professional development organizations (r=0.38), number of leadership positions in local school or vocational department (r=0.34), and years teaching (r=0.32).

Table 4-16. Pearson's Product Moment Correlations Between Professional and Civic Organization Leadership Experience and Selected Variables (n=158)

Variable	Offices in Professional Education Organizations	Offices in Civic Organizations
Number of regional or state agricultural education committees participated in	0.46*	0.16*
Years in current teaching position	0.40*	0.19*
Years teaching	0.37*	0.32*
Number of workshops and seminars for agriculture teachers	0.33*	0.09
Level of education	0.31*	0.16*
Age	0.30*	0.25*
Number of offices held in professional development organizations	0.26*	0.38*
Number of leadership positions in local school or vocational department	0.23*	0.34*
One-instructor department[1]	-0.21*	-0.13
Number of offices held in civic organizations	0.21*	--
Number of workshops and seminars for non-agriculture teachers	0.20*	0.20*
Gender[2]	0.19*	0.19*
Instructor attitude towards the teaching of leadership	-0.18*	-0.11
Number of agricultural science instructors in school[1]	0.17*	0.06
Three-instructor department[1]	0.13	0.22*
Membership in professional development organizations[1]	0.10	0.23*
Instructor leadership teaching behavior	0.03	0.15

Note. *=p<0.05; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Correlations with membership in professional development organizations, as shown in Table 4-17, revealed only low and negligible relationships. Moderate relationships were revealed between offices in professional development organizations and number of

offices held in civic organizations (r=0.38), number of regional or state agricultural education committees participated in (r=0.39), and number of leadership positions in local school or vocational department (r=0.39).

Table 4-17. Pearson's Product Moment Correlations Between Professional Development Organization Membership and Holding Office, and Selected Variables (n=158)

Variable	Membership in Professional Development Organizations	Offices in Professional Development Organizations
Number of workshops and seminars for agriculture teachers	0.25*	0.25*
Number of leadership positions in local school or vocational department	0.24*	0.39*
Number of offices held in high school organizations outside of FFA	0.23*	0.09
Number of offices held in civic organizations	0.23*	0.38*
Number of regional or state agricultural education committees participated in	0.21*	0.39*
Instructor leadership teaching behavior	0.20*	0.19*
Bachelor degree in agricultural education[1]	0.18*	0.14
Instructor attitude towards the teaching of leadership	0.17*	0.11
Years in current teaching position	0.10	0.22*
Number of offices held in professional education organizations	0.10	0.26*
Years teaching	0.08	0.28*
Age	0.07	0.28*
Number of times attended Advisor's Washington Leadership Conference	0.06	0.24*
Membership in professional development organizations	--	0.50*

Notes: *=p<0.05; [1]=Yes coded as 1, No coded as 0.

Committee Participation, and Workshops and Seminar Presentations

Regional and state agricultural education committee participation ranged from zero to 35 committees, with an average of M=3.67 committees (see Table 4-18) per participant. Of the participants, 78.0% (n=124) had participated on one or more committees. When asked about workshops and training seminars presented to agriculture teachers, 51.9% (n=82) had conducted workshops and seminars for agriculture

instructors, while 54.7% (*n*=87) had presented workshops and seminars for non-agriculture teachers.

Table 4-18. Mean Committee Participation, and Workshops and Seminars Presented (*n*=158)

	M	SD	Minimum	Maximum
Number of regional and state agricultural education committees served on	3.67	5.29	0	35
Number of workshops and seminars conducted for agriculture teachers	2.37	4.71	0	30
Number of workshops and seminars conducted for non-agriculture teachers	2.89	5.62	0	31

Table 4-19 shows correlations of selected variables with number of regional or state agricultural education committees. A substantial relationship was found with number of workshops and seminars for agriculture teachers (*r*=0.50). Moderate relationships were found with number of offices held in professional education organizations (*r*=0.46), number of offices held in professional development organizations (*r*=0.39), and number of leadership positions in local school or vocational department.

Number of workshops and seminars for agriculture teachers, as shown in Table 4-19, had moderate relationships with number of leadership positions in local school or vocational department (*r*=0.49), number of workshops and seminars for non-agriculture teachers (*r*=0.42). In addition, moderate relationships were found with number of times attended Advisor's Washington Leadership Conference (*r*=0.38), number of offices held in professional education organizations (*r*=0.33), and years teaching in current position (*r*=0.32). When correlations were conducted with number of workshops and seminars for non-agriculture teachers, a moderate relationship was found with number of leadership positions held in local school or vocational department (*r*=0.35). Additional correlations with these variables can be found in Appendix D, Table D-3.

Table 4-19. Pearson's Product Moment Correlations Between Committee Participation, and Workshops and Seminar Presentations and Selected Variables (*n*=158)

Variable	Number of Regional or State Agricultural Education Committees Participated in	Number of Workshops and Seminars for Agriculture Teachers	Number of Workshops and Seminars for Non-Agriculture Teachers
Number of workshops and seminars for agriculture teachers	0.50*	--	--
Number of offices held in professional education organizations	0.46*	0.33*	0.20*
Number of offices held in professional development organizations	0.39*	0.25*	0.09
Number of leadership positions in local school or vocational department	0.32*	0.49*	0.35*
Years in current teaching position	0.29*	0.32*	0.10
Number of workshops and seminars for non-agriculture teachers	0.21*	0.42*	--
Membership in professional development organizations	0.21*	0.25*	0.13
Number of offices held in college organizations	0.19*	0.12	0.16*
Number of times attended Advisor's Washington Leadership Conference	0.19*	0.38*	0.07
Number of offices held in civic organizations	0.16	0.09	0.20*

Note. *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

School and Vocational Department Leadership Positions, and Attending the Advisors Washington Leadership Conference

When looking at the number of leadership positions participants have held in their local school or vocational department, 82.9% (*n*=131) held leadership positions, with an average of *M*=2.58 positions per participant, and a range of zero to 12 positions. In terms of number of times attending the Advisor's Washington Leadership Conference, 15.1% (*n*=24) instructors had attended the conference (see Table 4-20).

Table 4-20. Mean Number of Leadership Positions Held in Local School or Vocational Department and Advisors' Washington Leadership Conference Attendance

	n	M	SD	Minimum	Maximum
Number of leadership positions held in local school or vocational department	158	2.58	2.55	0	12
Number of times attended the National FFA Advisors' Washington Leadership Conference	159	0.30	1.37	0	16

Table 4-21 presents the correlations for the number of leadership positions in local school or vocational department and selected variables. Moderate relationships to the variable number of leadership positions in local school or vocational department include number of workshops and seminars for agriculture teachers (r=0.49), number of offices held in professional development organizations (r=0.39), number of workshops and seminars for non-agriculture teachers (r=0.35), number of offices held in civic organizations (r=0.34), and number of regional or state agricultural education committees participated in (r=0.32). In addition, one moderate relationship was found between number of times attended Advisor's Washington Leadership Conference and number of workshops and seminars for agriculture teachers (r=0.38).

Leadership Course Taught in Agricultural Science Program

When asked if a leadership course was taught in their agricultural science program, 52.6% (n=82) indicated this did occur. Pearson's Product Moment correlation revealed a moderate relationship with instructor leadership teaching behavior (r=0.44) (see Table 4-22).

Table 4-21. Pearson's Product Moment Correlations Between School and Vocational Department Leadership Positions, and Attending the Advisors Washington Leadership Conference and Selected Variables (n=158)

Variable	Number of Leadership Positions in Local School or Vocational Department	Number of Times Attended Advisor's Washington Leadership Conference
Number of workshops and seminars for agriculture teachers	0.49*	0.38*
Years teaching	0.39*	0.18*
Number of offices held in professional development organizations	0.39*	0.24*
Number of workshops and seminars for non-agriculture teachers	0.35*	0.07
Age	0.35*	0.16
Number of offices held in civic organizations	0.34*	0.05
Number of regional or state agricultural education committees participated in	0.32*	0.19*
Years in current teaching position	0.25*	0.21*
Membership in professional development organizations	0.24*	0.06
Number of offices held in professional education organizations	0.23*	0.10
Number of times attended Advisor's Washington Leadership Conference	0.17*	--
FFA member in high school[1]	-0.17 *	0.02

Notes: *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

Table 4-22. Pearson's Product Moment Correlations Between Leadership Course Taught in Agricultural Science Program and Selected Variables (n=158)

Variable	Leadership Course Taught in Agricultural Science Program[1]
Instructor leadership teaching behavior	0.44*
Number of leadership courses taken in college	0.28*
Bachelor degree in agricultural education[1]	0.21*
Certified through a university agriculture teacher education program[1]	0.17*
Gender[2]	0.16*

Notes: *=$p<0.05$; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Objective Two: Determine the Extent to which Leadership Education is being Taught in High School Agricultural Science Classrooms

Participants were asked 28 questions to determine instructor leadership teaching behavior, that is, the extent to which leadership was being taught in the participants' classroom. These questions, based on curriculum content areas contained in unit two of the LifeKnowledge curriculum, were used to provide an indication of the level of leadership instruction occurring in the classroom. These questions were reviewed by an expert panel and pilot tested. Using a series of 28 statements, the participant was asked if they taught leadership by indicating either *yes* they taught the particular concept or *no* they did not teach the concept (Connors & Elliot, 1994; Rudd & Hillison, 1995). The instrument was developed as a paper and pencil instrument (see Appendix A) and as a web page for use on the Internet (see Appendix B). Answers for this section of the web-based instrument were indicated by using the computer mouse to click on a "radio button" to indicate their answer using the dichotomous scale.

Responses to these 28 statements were summated and analyzed as a construct. The greater the number of leadership concepts taught, the greater the level of instructor leadership teaching behavior. The average participant indicated they were formally teaching specific lessons addressing an average of M=18.88, SD=8.21, of the 28 concepts of leadership. The median was 20.00 with a range of zero to 28. Of these, 94.0% (n=157) were teaching one or more specific lessons addressing these leadership concepts.

Based on responses to statements in section one of the instrument (see Appendix A), participants taught the most lessons on the following leadership concepts: "leaders are important," "to identify leaders," and "to develop a vision for the future." Lessons

taught the least by the participants were “the value of having a mentor” and “to select a mentor.”

The distribution of instructor leadership teaching behavior is shown in figure 4-5. The distribution shows a normal curve that is skewed right. The figure reveals a group on the left of approximately 10 participants that taught few or none of the leadership concepts inquired about, then reveals a general increase in the frequency of leadership concepts taught. The far right side of the figure illustrates a large group of participants that indicated they taught all or nearly all of the leadership concepts about which the instrument inquired.

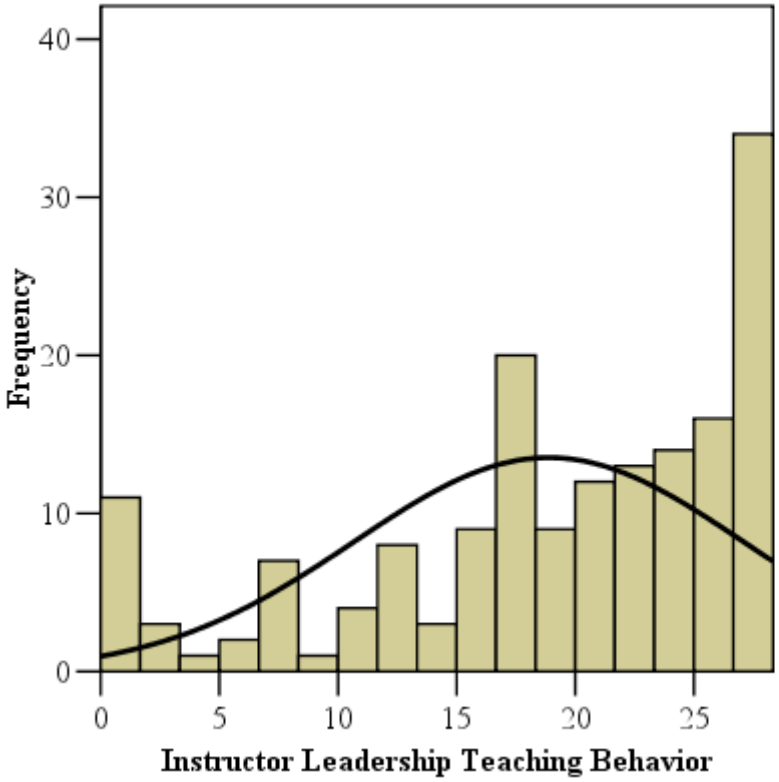


Figure 4-5. The Distribution of Instructor Leadership Teaching Behavior

Pearson Product Moment correlations were conducted for instructor leadership teaching behavior, shown in Table 4-23. These correlations were conducted based on the

explanatory variables of behavior found in previous studies (Miller, Kahler, & Rhealt, 1989; Vaughn & Moore, 2000) and the theoretical behavioral model used in this study. Relationships with leadership teaching behavior revealed moderate correlations with leadership course taught in agricultural science program (r=0.44), and instructor attitude towards the teaching of leadership (r=0.38). Other correlations found, although significant, were low. An exhaustive table of correlations with instructor leadership teaching behavior is found in Appendix D, Table D-5.

Table 4-23. Pearson's Product Moment Correlations Between Instructor Leadership Teaching Behavior and Selected Variables (n=156)

Variable	Instructor Leadership Teaching Behavior
Leadership course taught in agricultural science program[1]	0.44*
Instructor attitude towards the teaching of leadership	0.38*
Gender[2]	0.23*
Number of leadership courses taken in college	0.22*
Instructor expectations after leadership has been taught	0.21*
Membership in professional development organizations	0.20*
Number of offices held in professional development organizations	0.19*
Urban location of school[1]	0.19*
Three-instructor department[1]	0.18*
Years teaching	0.16*

Note. *=p<0.05; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Objective Three: Based on National FFA LifeKnowledge Leadership Curriculum, Determine High School Agricultural Science Instructor Leadership Knowledge

The instructor leadership knowledge score consisted of eight multiple choice and seven true-false questions. These questions were developed from the lesson objectives and evaluation tools found in unit two of the LifeKnowledge curriculum. They were then reviewed by an expert panel and pilot tested. The answers to these questions were summated to determine a knowledge score. Scores ranged from four correct answers to

15 correct answers, with an average score of *M*=10.19, *SD*=1.98, and a median of 10.00 of a possible 15.

Responses to the instrument questions (see Appendix A) indicated the questions answered correctly most frequently by the participants were, "Something that someone wants to achieve is a: Goal," "Delegating tasks takes more time than it saves: False," and "Discouragement and giving up on a project is part of being responsible and accountable." Questions answered incorrectly most frequently by the participants were, "Being responsible and accountable means: Being answerable for key areas of our life with qualified people," "Personal self-worth is: The value I place in my own contributions," and "When a person has dedicated time and effort to improving themselves (and their lives) in the areas of social/family life, work/school life, and personal life, we call this: Balance."

Figure 4-6 provides a visual representation of the distribution of instructor leadership knowledge construct. The knowledge construct had a normal distribution, indicating a majority of the participants provided answers towards the center of the scale. Based on a similar mean (*M*=10.19) and median (10.00), the average level of participant leadership knowledge could be interpreted as moderate. When Pearson's Product Moment correlations were conducted with instructor leadership knowledge, they revealed only low relationships with other variables.

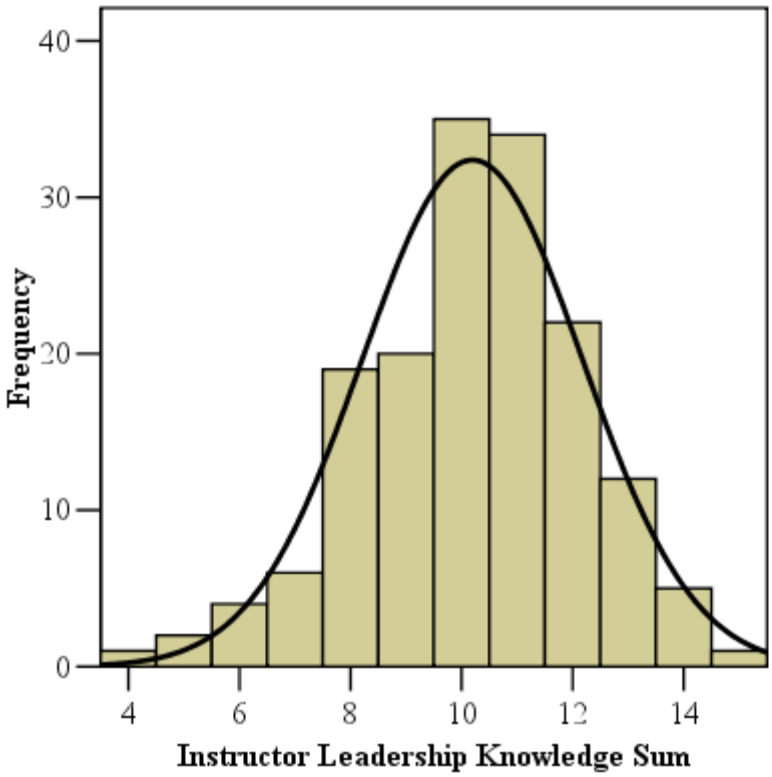


Figure 4-6. Distribution of Instructor Leadership Knowledge

Objective Four: Determine High School Agricultural Science Instructor Attitude towards Teaching Leadership

A semantic differential consisting of 12 pairs of words was used to obtain the attitude construct. Answers from the questions were summated, with a higher score indicating a more positive attitude toward teaching leadership. The summated answers ranged from 25 to 72, with a median of 66.00. Participants had an average attitude score of *M*=64.69, *SD*=6.81 out of a possible 72.

The distribution of instructor attitude toward teaching leadership is presented in figure 4-7. The distribution is skewed to the right. Based on the participants' attitude mean (*M*=64.69) and median (66.00), the average attitude score can be interpreted as moderate.

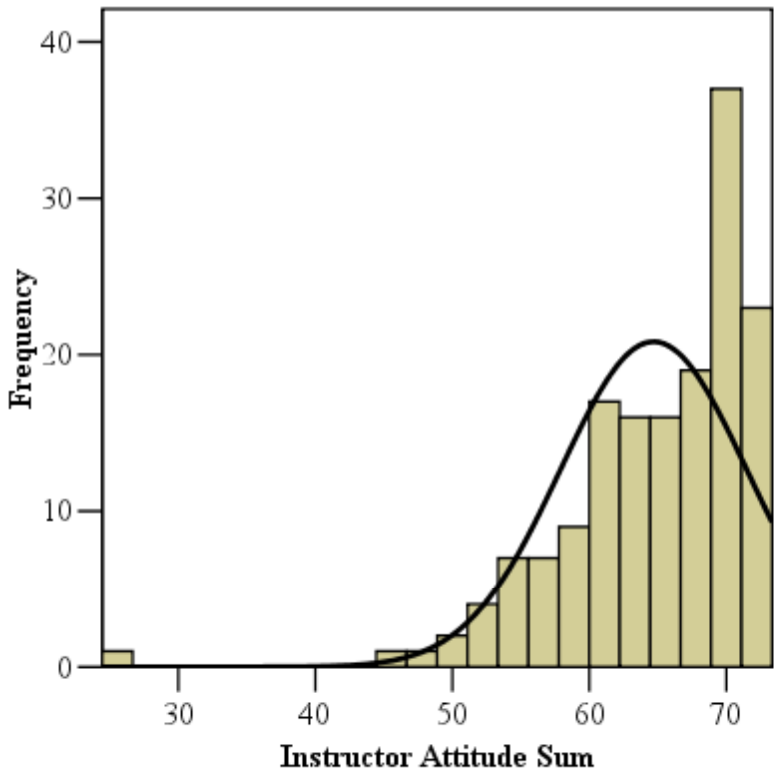


Figure 4-7. Instructor Attitude Toward Teaching Leadership.

Based on previous research (Miller, Kahler, & Rhealt, 1989; Vaughn & Moore, 2000) it was decided to conduct correlations on selected variables. Pearson's Product Moment correlation with instructor attitude toward teaching leadership (see Table 4-24) revealed moderate correlations with instructor teaching behavior (r=0.38) and instructor expectations after leadership has been taught (r=0.34).

Table 4-24. Pearson's Product Moment Correlations Between Instructor Attitude Towards Teaching Leadership and Selected Variables (n=158)

Variable	Instructor Attitude Towards Teaching Leadership
Instructor leadership teaching behavior	0.38*
Instructor expectations after leadership has been taught	0.34*
Certified through a university agriculture teacher education program[1]	0.16*

Notes: *=p<0.05; [1]=Yes coded as 1, No coded as 0.

Objective Five: Determine the Expectations that High School Agricultural Science Instructors have of the Agriculture Students after Leadership has been Taught

The instructor expectations after leadership has been taught consisted of 22 dichotomous questions, the answers of which were summated to form a construct. The expectation questions were based on the leadership concepts in unit two of the LifeKnowledge curriculum. Higher scores indicated higher instructor expectations of students after teaching leadership. The range of summated answers ranged from four to 22 with a median of 18.00. The expectation average score was M=17.45, SD=3.92 out of a possible 22.

Based on responses to section two of the questionnaire (see Appendix A), participants responded "yes" most frequently to the following statements: "After my students learn about self-worth I would expect students to have greater confidence in their own ideas," "After my students learn about leaders I would expect students to identify ways they can lead others," and "After my students learn about goals I would expect students to demonstrate how to prioritize personal goals." Statements that participants responded "no" to most frequently were, "After my students learn about mentors I would expect students to set an appointment with their mentor," "After my students learn about personal values I would expect students to write a set of standards by which they will evaluate decisions," and "After my students learn about vision I would expect students to create a vision that others can see and internalize."

The distribution of instructor expectations after leadership has been taught is shown in Figure 4-8, showing a distribution skewed right. When the mean (M=17.45) and median (18.00) of the distribution are taken into consideration, the average participant

expectations of students after leadership had been taught is less than the median and can be interpreted as having moderate expectations.

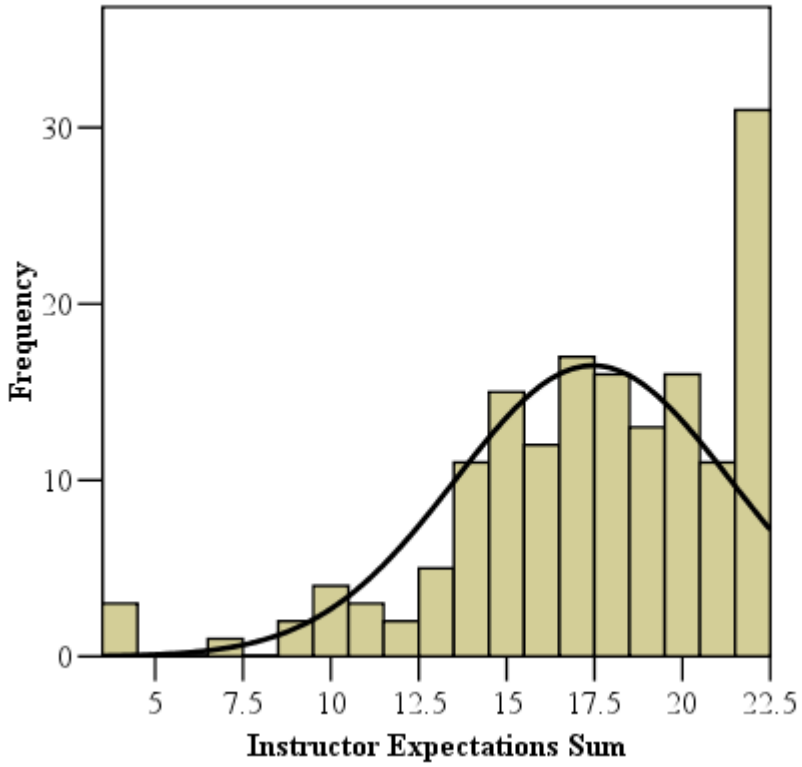


Figure 4-8. Instructor Expectations after Leadership Has Been Taught

The findings of previous researchers (Miller, Kahler, & Rhealt, 1989; Vaughn & Moore, 2000) and the theoretical behavioral model prompted correlations to be conducted with instructor expectations after leadership has been taught (see Table 4-25). This analysis revealed a moderate relationship with instructor attitude towards the teaching of leadership (r=0.34).

Table 4-25. Pearson's Product Moment Correlations Between Instructor Expectations after Leadership has been Taught and Selected Variables (n=157)

Variable	Instructor Expectations after Leadership Instruction
Instructor attitude towards the teaching of leadership	0.34*
Instructor leadership teaching behavior	0.21*
Bachelor degree in agricultural education	0.20*
Number of offices held in high school organizations outside of FFA	0.19*
Certified through a university agriculture teacher education program	0.17*

Notes: *=p<0.05; [1]=Yes coded as 1, No coded as 0.

Objective Six: Determine the Relationship between High School Agricultural Science Instructor Leadership Knowledge, Instructor Attitude Towards Teaching Leadership, Instructor Expectations of Students after Teaching Leadership, and Instructor Demographics to Instructor Leadership Teaching Behavior

Correlations

A Pearson's Product Moment Correlation table was constructed using the demographic variables, including the dummy coded variables, instructor leadership knowledge score, and the constructs of instructor leadership teaching behavior, instructor expectations after leadership has been taught, and instructor attitude towards teaching leadership. The significant correlations for these variables in relation to instructor leadership teaching behavior are provided in Table 4-23 and an exhaustive list is found in Appendix D, Table D-5.

The variables with significant correlation to the construct of behavior were leadership course taught in agricultural science program (dummy coded) (r=0.44), instructor attitude towards the teaching of leadership (r=0.38), gender (dummy coded) (r=0.23), number of leadership courses taken in college (r=0.22), instructor expectations after leadership has been taught (r=0.21), number of offices held in professional

development organizations (r=0.20), membership in professional development organizations (r=0.20), urban location of school (dummy coded) (r=0.19), three-instructor department (dummy coded) (r=0.18), and years teaching (r=0.16). These variables were then placed into SPSS® 12.0 for Windows to develop an explanatory regression model.

The variables leadership course taught in agricultural science program, urban location of school, gender, and instructor attitude towards the teaching of leadership, were included in the model that best explained total variance in agricultural science instructor leadership teaching behavior. Regression analysis revealed that this model significantly explained 33% of the variance in instructor leadership teaching behavior, the dependent variable.

Regression

Backwards regression was chosen because it is most appropriately used when the research goal is primarily exploratory (Gliem, 2003). Using backwards multiple regression techniques, a significant explanatory model was developed with a R-square value of 0.35 and an adjusted R-square value of 0.33, $F(4,145)=19.15$, $p<0.05$. This model used the explanatory variables leadership course taught in agricultural science program, urban location of school, gender, and instructor attitude towards the teaching of leadership. Unstandardized regression coefficients (B), intercept, and standardized regression coefficients (β) for each variable are presented in Table 4-26.

Table 4-26. Backward Regression Explaining Leadership Teaching Behavior (*n*=145)

	B	SE	Beta	*t*	Sig.
(Constant)	-11.79	5.64	--	-2.09	0.04
Leadership course taught in agricultural science program	6.12	1.16	0.37	5.28	0.00
Instructor attitude towards the teaching of leadership	0.38	0.09	0.30	4.39	0.00
Gender	3.37	1.29	0.18	2.62	0.01
Urban location of school	4.75	1.84	0.18	2.58	0.01

Note: $F(4,145)=19.15$, $p<0.00$, Adjusted $R^2=0.33$

The explanatory model produced by regression analysis is presented in Figure 4-9. This model illustrates that instructor leadership teaching behavior is a function of if a leadership course is taught in the high school agricultural science program, instructor attitude toward the teaching of leadership, gender, and urban location of school.

Instructor Leadership Teaching Behavior =

-11.79 + (6.12) Leadership course taught in agricultural science classroom +

(0.38) Instructor attitude towards the teaching of leadership +

(3.37) Gender +

(4.75) Urban location of school

Figure 4-9. Explanatory Model of Instructor Leadership Teaching Behavior

Within this model gender is coded as 1=male and 0=female. Because it seemed unlikely that the gender of the instructor would directly affect the teaching of leadership, that is instructor leadership teaching behavior, statistical analyses using crosstabs were conducted on the data to determine if other variables were influencing gender.

Coding leadership instructor behavior scores as dichotomous variables with scores above the median as high=1 and scores below the median as low=0, data were analyzed by gender and single-instructor department. By doing this, influences found in multiple instructor departments were controlled, allowing single-teacher departments to be compared by gender on the variable of instructor leadership teaching behavior. A significant difference at Phi<0.05 was revealed in this analysis, indicating that female instructors in single-instructor departments were less likely to teach leadership than their male counter parts in single-instructor departments. This analysis revealed little explanation why males were found to teach more leadership than females. Additional discussion will be given to this topic in chapter five.

Table 4-27. Crosstabs of Single-Instructor Department by Gender and Instructor Leadership Teaching Behavior

		Behavior		
Gender		High (<20)	Low (≥20)	Total
Female	Count	6.0	16.0	22.0
	Expected count	10.9	11.1	22.0
Male	Count	39.0	30.0	69.0
	Expected count	34.1	34.9	69.0
Total	Count	45.0	46.0	91.0
	Expected count	45.0	46.0	91.0

Notes: Phi= -0.25, $p<0.05$

Summary

This chapter presented the findings of the study. Findings were organized and presented by the following objectives: Determine the demographic characteristics of high school agricultural science instructors; determine the extent to which leadership is being taught in high school agricultural science classrooms; based on National FFA LifeKnowledge leadership curriculum, determine high school agricultural science instructor leadership knowledge; determine high school agricultural science instructor

attitude towards teaching leadership; determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught; and determine the relationship between high school agricultural science instructor leadership knowledge, instructor attitude towards leadership, instructor expectations of students, and instructor demographics to instructor leadership teaching behavior.

Chapter 5 will present a more detailed discussion of the findings. Conclusions and recommendations will also be presented.

CHAPTER 5
DISCUSSION

The purpose of this study was to determine the extent to which high school agricultural science instructors are currently teaching leadership in formal agricultural science classrooms and to explain what influences agricultural science instructors to teach leadership in the classroom. To accomplish this, a modified version of the Triandis (1971) behavioral model was used, which incorporates knowledge, attitude and expectations to explain behavioral outcomes. Specifically this study sought to:

- Determine the demographic characteristics of high school agricultural science instructors;
- determine the extent to which leadership is being taught in high school agricultural science classrooms;
- based on National FFA LifeKnowledge leadership curriculum, determine high school agricultural science instructor leadership knowledge;
- determine high school agricultural science instructor attitude towards teaching leadership;
- determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught; and
- explain the relationship between high school agricultural science instructor leadership knowledge, high school agricultural science instructor attitude towards teaching leadership, high school agricultural science instructor expectations of students, and high school agricultural science instructor demographics in light of high school agricultural science instructor leadership content area teaching behavior.

Chapter two reviewed previous research conducted about youth leadership and provided a theoretical framework around which this research is framed. Chapter three

described the research methods used in this study. Chapter four reported the findings of this study.

This chapter will present a more detailed discussion of the findings. Conclusions and recommendations will also be presented. For the benefit for the reader, a brief summary of the problem statement, methods, and findings are also included.

Problem Statement

The extent to which leadership is being taught in agricultural science classrooms is unknown and the attributes of agricultural science instructors that influence their decision to formally teach leadership are unclear. Research has been conducted to determine predictors of agricultural science program quality (Vaughn & Moore, 2000) and how leadership skills affect youth (Carter & Spotanski, 1989; Dormody & Seevers, 1994a; Ricketts & Newcomb, 1984; Rutherford et al., 2002; Scanlon & Burket, 1986; Townsend & Carter, 1983) and community (Brannon, Holley & Key, 1989) but no research has been conducted to determine the extent to which leadership is being taught in the formal secondary agricultural science classroom or why instructors choose to teach leadership.

The following research questions were posited: To what extent are high school agricultural science instructors teaching leadership in the formal classroom and what are the factors that influence high school agricultural science instructors to teach, or not teach, leadership?

Review of Research Design

The study was conducted using survey research. A correlational and *ex post facto* design was employed. A correlational design involves the collection of two or more sets of data from a group of subjects with the attempt to determine the subsequent relationship between those sets of data (Tuckman, 1994). *Ex post facto* is a study in which the

researcher examines the effects of a naturally occurring treatment after the treatment has occurred. The researcher relates the after-the-fact treatment to an outcome or dependent measure (Tuckman, 1994).

The dependent variable measured was instructor behavior as determined by the level of formal leadership instruction taught in the agricultural science classroom. Independent variables measured were instructor leadership knowledge, instructor attitude towards teaching leadership, instructor expectations after teaching leadership to students, and instructor demographics. The measures of instructor behavior, instructor knowledge and instructor expectations were developed using lesson objectives in unit two of the LifeKnowledge curriculum (National FFA Organization, 2003).

Summary of Results

Objective One

Objective one sought to determine the demographic characteristics of high school agricultural science instructors. Of the participants in this study, 73.1% (n=114) were male. The age of the participants ranged from 23 to 61, with an average age of 39.37 years. The number of years teaching for participants ranged from one to 38, with an average of 14.85 years. The number of years teaching in their current position ranged from one to 34, with an average of 10.61 years. The number of agriculture instructors at the school ranged from one to six, with an average of 1.56 instructors.

When participants were asked to describe the location of the community in which their school was located, 73.4% taught in a rural community, 16.2% taught in a suburban community, and 10.4% taught in an urban community.

Of the participants in this study, 1.9% had less than a bachelor's degree, 47.5% had a bachelor's degree, 50.6% had a master's degree and 96.8% had been certified through a

university agriculture teacher education program. Most participants (85.4%) stated their bachelor's degree was in agricultural education.

Many participants were an FFA member in high school (86.1%), an FFA chapter officer, (75.9%), and some (33.1%) had been an officer above the chapter level. Most (74.1%) participants held offices outside of FFA. Participants took an average of 1.67 leadership courses in college, 73.1% had taken one or more college leadership courses, and 67.3% held office in a college student organization.

Fifty-one percent (51%) of the participants held an office in a professional education organization, 58.0% held an office in civic organizations, 79.2% were members of a professional development organization, and 36.1% had held office in a professional development organization.

Regional and state agricultural education committee participation ranged from zero to 35 committees, with 78.0% having participated on one or more committees. Many (51.9%) had conducted workshops and seminars for agriculture instructors, while 54.7% had presented workshops and seminars for non-agriculture teachers. In addition, 82.9% of the participants held leadership positions held in their local school or vocational department, while 15.1% (n=24) had attended the Advisor's Washington Leadership Conference, and 52.6% indicated there was a leadership course taught in their agricultural science program.

Objective Two

Objective two sought to determine the extent to which leadership content areas are being taught in agricultural science classrooms. Participants were asked 28 questions to determine instructor leadership teaching behavior based on the National FFA LifeKnowledge curriculum. Each question asked if the participant formally taught a

specific lesson topic that addressed a particular concept of leadership. The answers to these questions were summated. The average participant indicated they were formally teaching specific lessons addressing an average of 18.88 leadership concepts. Of these, 94.0% were teaching one or more specific lessons addressing these leadership concepts.

Objective Three

The purpose of objective three was to determine the level of leadership knowledge based on the National FFA's LifeKnowledge curriculum. The instructor leadership knowledge score consisted of eight multiple choice and seven true-false questions. The answers to these questions were summated to determine a knowledge score. Scores ranged from four correct answers to 15 correct answers, with an average score of 10.19 out of 15.

Objective Four

Objective four sought to determine high school agricultural science instructor attitude towards teaching leadership. A semantic differential consisting of 12 pairs of words was used to obtain the attitude construct. Answers from the questions were summated, with a higher score indicating a more positive attitude. The summated answers ranged from 25 to 72, with an average of 64.69 out of 72.

Objective Five

The purpose of objective five was to determine the expectations that high school agricultural science instructors have of the agriculture students after leadership has been taught. The expectation construct consisted of 22 questions based on the National FFA LifeKnowledge curriculum, the answers of which were summated. Higher scores indicated higher expectations of students after teaching leadership. The range of

summated answers was 4 to 22 with an average expectation score of 17.45 out of a possible 22.

Objective Six

Objective six sought to determine the relationship between high school agricultural science instructor leadership knowledge, instructor attitude towards teaching leadership, instructor expectations of students after teaching leadership, and instructor demographics to instructor leadership teaching behavior. For statistical analysis, all dichotomous variables were coded as dummy variables. Using Pearson's Product Moment correlation, correlations between the construct of instructor leadership teaching behavior and the variables studied were determined. Significant correlations were found with the following variables: gender, construct of instructor expectations of students after leadership has been taught, construct of instructor attitude toward teaching leadership, membership in professional development organizations, number of offices held in professional development organizations, if a leadership course was taught in their agricultural science program, number of leadership courses taken in college, years teaching, urban school location, and the dummy coded variable three-instructor department. These variables were then used to develop an explanatory regression model.

Using backwards stepwise multiple regression techniques, a significant explanatory model was developed with a R-square value of 0.35 and an adjusted R-square value of 0.33, $F(4,145)=11.96$, $p<0.05$. This model used the explanatory variables if a leadership course was taught in the agricultural science program, the construct of attitude toward teaching leadership, gender, and urban school location to explain instructor leadership teaching behavior.

Conclusions

This study randomly selected agricultural science instructors from throughout the United States to participate in this study. Therefore, the results of this study should not be generalized beyond the population of United Stated high school agricultural science instructors during the 2003-2004 school year. With this limitation in mind, the following conclusions were drawn from the findings of the study:

- The average agricultural science instructor is well established in their career, at 39.37 years of age, having taught for 14.85 years, and has been teaching in their current position for 10.61 years.
- Most agricultural science instructors are male, teach in a rural location, are in a single-teacher department, received their certification through a university agriculture teacher program, and earned their bachelors of science degree in agricultural education.
- FFA participation is a common theme among instructors who responded, as most agricultural science instructors were an FFA member in high school, an FFA chapter officer, and held at least one office in another high school organization outside of FFA.
- Most instructors sampled have limited formal preparation in leadership with most agricultural science instructors having taken at least one leadership course in college.
- Instructors surveyed have a great deal of informal leadership experience with most participants having leadership roles beyond their teaching responsibilities.
- The demographic characteristics of agricultural science instructors that teach in rural areas differ from the demographic characteristics of agricultural science instructors in urban areas.
- Females and males differ in their leadership experiences.
- Based on the National FFA LifeKnowledge curriculum, some leadership is being taught in most participants' agricultural science classrooms.
- Based on the National FFA LifeKnowledge curriculum, the average participant has a moderate level of leadership knowledge.
- Most participants have a positive attitude towards the teaching of leadership.

- Based on the National FFA LifeKnowledge curriculum, most participants have positive expectations of students after leadership has been taught.
- Teaching a leadership course in the agricultural science program, being in an urban location, gender, and the instructor having a positive attitude toward student actions after leadership was taught are the variables that best explained leadership teaching behavior.

Discussion and Implications

Objective One: Determine the Demographic Characteristics of High School Agricultural Science Instructors

The average agricultural science instructor is 39.37 years old, has been teaching for 14.85 years, and has been teaching in their current position for 10.61 years

Based on the demographic information collected in this study, the average agricultural instructor is 39.37 years old. This is similar to the findings of Dormody, Seevers and Clason (1996). Their national study found the mean age of agriculture teachers to be 40.2 years of age. Whent (1994) found in her national study that the mean age of teachers was 37.6 years. This information shows that the average age of agricultural science instructors in the profession has changed very little over the past 10 years.

Likewise, the average instructor has been teaching for 14.85 years and has been teaching in their current position for 10.61 years. This is similar to what Thobega and Miller (2003) found in Iowa and what Dormody, Seevers and Clason (1996) found in a national study. Iowa agriculture instructors had 14 years teaching experience and Dormody et al. found the mean numbers of years teaching to be 14.1 nationally. In addition, Dormody et al. (1993) found the average number of years teaching to be 14.5. These findings illustrate the number of years teaching for agriculture instructors has remained consistent during the past ten years.

This study found that the average teacher has been in their current teaching position for 10.61 years. This is less than what has been reported in other studies. Odell, Cochran, Lawrence and Garton (1990) in their regional study reported the number of years in their current teaching position to be 15.5 years and a state study by Vaughn and Moore (2000) stated the number of years teaching in current position was 13.1. It would seem as though the findings of this study indicate a decrease in the number of years that instructors have taught in their current position. This may indicate that instructors are becoming transient in their teaching positions than in years past. Due to the response rate of this study, and the corresponding sampling error, additional research should be conducted to determine if this observed decline in years teaching in current position is a trend.

Most agricultural science instructors are male, teach in a rural location, are in a single teacher department, received their certification through a university agriculture teacher program, and earned their bachelor's of science degree in agricultural education

This study found that the majority (73.1%) of agriculture instructors are male. This finding is similar to a study of Virginia agriculture instructors by Duncan (2004) in which he found that 67.0% of Virginia's agriculture instructors are male. However, this finding is different from the findings of other national studies. Dormody (1993) found that 93.4% of the agriculture instructors were male, and Dormody, Seevers and Clason (1996) discovered that 95% of agriculture instructors were male and 5% were female. Although the majority of agriculture instructors in this study are male, these findings seem to indicate a trend over the last 10 years in an increase of the number of female agriculture instructors teaching high school agricultural science.

Most agriculture programs are in rural areas (73.4%), with 16.2% located in suburban areas, and 10.4% in urban areas. Other studies have found that 75.2% of the agriculture programs are in rural areas (Odell et al., 1990) . This study found that urban programs show a stronger, positive relationship to instructor teaching behavior. This may be due in part to the nature of the urban programs. Trede and Russell (1999) found that many urban programs teach courses in areas such as biotechnology rather than in production agriculture. More discussion of this topic is found later in this chapter in the section addressing objective two of the study.

Most instructors are in a single-instructor department (59.0%), and many are in two-instructor departments (32.1%). This is similar to Croom's (2003) national study and nearly identical to the North Carolina study by Vaughn and Moore (2000). Croom found that agriculture instructors in the Southeastern United States were predominantly in single-instructor departments (42%) and many were in two-instructor departments (38%). Vaughn and Moore (2000) determined that 57.3% of the instructors were in single-instructor departments and 31.2% of the instructors were in two-instructor departments. However, these findings are different from the national study by Dormody et al. (1996), in which single-instructor departments made up 76.0% of the participants and two-instructor departments made up 20.0% of the participants. There is some discrepancy between these studies. This could be attributed to the time between each study. In the time since the Dormody et al. study was conducted, it appears that the number of single-instructor departments have decreased, while at the same time an increase has occurred in the number of two-instructor departments. If this is the case, then a trend exists towards multiple-instructor departments.

When the variable number of instructors in each agricultural science department was dummy coded as dichotomous variables, participants in three-instructor departments were found to have a significant relationship with instructor leadership teaching behavior. These results indicate participants in three-instructor departments were more likely to teach leadership in the classroom than participants in departments with fewer or more instructors. Perhaps multiple instructor departments have the flexibility to teach a wider variety of subjects, including leadership, than do single-instructor departments, and if so, an valiant effort should be made to equip these instructors with the resources in the LifeKnowledge curriculum.

Certification from a university agriculture teacher certification program was prevalent (96.8%) in this study. Although this study did not inquire if participants were certified through an alternative means, there has been some concern about alternatively certified teachers entering the agricultural education discipline. Yet this study indicates that a strong majority of agriculture instructors are traditionally certified.

A significant correlation emerged between participant certification from a university agriculture teacher certification program and teaching a leadership course in their agricultural science program. This indicates that participants who were certified through a university agriculture teacher education program had a greater propensity to teach leadership courses than participants who had not been certified through a university agricultural education program.

At the same time, most teachers received their bachelor degree in agricultural education (85.4%). This is similar to findings of Croom (2003), in which 86.7% of the instructors from the Southeastern region of the United States earned their bachelor degree

in agricultural education. This finding emphasizes the potential influence that university teacher education programs have on the secondary agriculture education discipline. University agriculture teacher education programs have the opportunity to influence the future of agricultural education based on the experiences and training they provide for pre-service instructors. This includes encouraging pre-service instructors to use specific curriculums, such as LifeKnowledge.

Two significant correlations were found between the variable participants who received their bachelor degree in agricultural education and the variables of high school FFA membership and holding an FFA chapter office. These findings reveal participants that earned a bachelor degree in agricultural education were more likely to have participated in FFA as a high school student. This may have implications for student recruitment into the agriculture teacher pre-service program.

Instructors in teaching in urban locations were less likely to have participated in FFA as a high school student

Negative correlations emerged between school location and the variables of FFA member in high school and FFA chapter officer. These relationships show that as the school location became more urban, the participants were less likely to have been an FFA member in high school or to have held an FFA chapter office. It may be that instructors that have not participated in FFA activities are drawn to suburban and urban agricultural science programs. Combined with the earlier finding that urban programs have a stronger relationship to instructor leadership teaching behavior, these findings suggest that urban high school agriculture instructors, with less FFA experience, teach more leadership than do their counterparts from non-urban locations with more FFA experience. More research should be conducted to investigate these findings.

Most agricultural science instructors were an FFA member in high school, an FFA chapter officer, and held at least one office in other high school organization outside of FFA

Most instructors were an FFA member in high school (86.1%) and an FFA chapter officer (72.3%). These findings are similar to those found by Vaughn and Moore (2000) who found 73.2% of the instructors in North Carolina were an FFA member and 62.4% were an FFA chapter officer. These findings indicate that a high percentage of agriculture instructors were involved in FFA as a high school student. The enjoyment of FFA participation may lead some students into the profession of becoming an agriculture instructor.

Because only a few FFA members have the opportunity to hold office above the chapter level, it comes as little surprise that 31.0% of the participants were officers above the chapter level. Vaughn and Moore (2000) found similar results (29.9%) in their study. However, participants that were an officer above the chapter level were more likely to hold office in other high school organizations and in college organizations. Perhaps the officer experiences in high school prepared these participants for officer roles in FFA positions above chapter level and college organizations.

Many participants (69%) held one or more offices in high school organizations other than FFA. This finding is similar to the findings of Vaughn and Moore (2000) who determined that 62.4 % of the instructors in their state study held offices in high school organizations other than FFA. Significant correlations found with number of offices held in high school organizations outside of FFA included the variables number of offices held in college organizations, membership in professional development organizations, and number of agricultural education committees served on at the regional and state level. From these findings, it appears that holding an office in high school organizations outside

of FFA is a predictor of college organization involvement. In addition, holding office in high school organizations outside of the FFA may provide a foundation that fosters participation in professional development organizations and on committees.

These findings lead the researcher to conclude that although agricultural science instructors have taken advantage of leadership opportunities in their youth, as evidenced from the number of instructors who have held offices in youth organizations, this leadership experience has negligible influence on their leadership teaching behavior. The question for future research becomes why do these experiences not have a greater affect on agricultural science instructor leadership teaching behavior? A broader question that needs to be addressed is do these leadership experiences during youth have an impact on leadership skills as an adult?

Most agricultural science instructors took at least one leadership course in college and were an officer in at least one college organization

Learning about leadership appears to have appeal to agricultural science instructors, as two-thirds (67.8%) of them have taken at least one leadership course in college, with many taking two (22.6%), and three (9.7%) courses. When correlated with instructor leadership teaching behavior, this relationship proved to be significant and positive. Also of interest is the significant, positive correlation between number of leadership courses taken in college and a leadership course taught in the agricultural science program. These positive relationships may be due to an increased level of leadership knowledge provided from the college courses (Cruickshank, 1990). More research should be conducted to fully investigate these relationships.

In addition, significant positive correlations were found between number of leadership courses taken in college, and the variables suburban school location and

instructor teaching in a three-instructor department. This interesting finding demands additional research. One possible explanation is that instructors that take leadership courses in college have well-developed interpersonal skills, as might be taught in college leadership courses, which allows them to effectively work in multiple-instructor departments.

The trend of agricultural instructors holding leadership positions in youth organizations continued into college with 67.3% of the participants holding at least one office in a college organization, while some participants held as many as 15 offices. An earlier study (Vaughn & Moore, 2000) found only 51% of the participants held office. Relationships with number of offices held in college organizations revealed participants who held offices in college organizations had significant, positive correlations with the variables committee membership and with working in a three-instructor department. Perhaps participation as an officer in college organizations provides the skills required for committee involvement and for working in a multiple-instructor department. These relationships deserve additional research so they may be fully understood.

Most participants were active in leadership roles beyond their teaching responsibilities

Most participants were active in some form of leadership role, such as holding leadership positions in the local school or vocational department (82.9%), membership in professional development organizations (79.2%), and participating on regional and state agricultural education committees (78.0%). These findings are quite different from an earlier study (Vaughn & Moore, 2000) in which 64.3% held positions in the local school or vocational department, 16.6% were members of professional development organizations, and 71.3% participated on regional and state agricultural education

committees. These findings suggest that leadership activity has increased, however other explanations may include differences between state and national studies.

Significant relationships with number of leadership positions in the local school and vocational department occurred between many variables. Number of offices held in professional education organizations, number of offices held in civic organizations, membership in professional development organizations, number of offices held in professional development organizations, number of state and regional agricultural education committees served on, number of workshops and seminars presented for agriculture teachers, and number of workshops and seminars presented for non-agriculture teachers all had significant relationships with number of leadership positions in the local school and vocational department. This indicates that instructors are involved in a number of leadership positions, and may benefit from leadership instruction so they may carry out their responsibilities effectively.

In addition, many of these variables had significant relationships with each other. Number of offices held in professional education organizations had significant relationships with number of offices held in civic organizations, number of offices in held in professional development organizations, number of regional or state agricultural education committees participated in, number of workshops and seminars for agriculture teachers, and number of workshops and seminars for non-agriculture teachers. Number of offices in civic organizations had significant relationships with membership in professional development organizations, number of offices held in professional development organizations, number of regional or state agricultural education committees participated in, and number of workshops and seminars for non-agriculture teachers.

Membership in professional development organizations had significant relationships with the variables number of regional or state agricultural education committees participated in and number of workshops and seminars for agriculture teachers. Offices in professional development organizations had significant relationships with the variables number of regional or state agricultural education committees participated in and number of workshops and seminars for agriculture teachers. These findings reveal instructors which participate in one leadership activity, such as holding office in their school, may be likely to participate in other leadership activities, such as committee participation or membership in professional development organizations. Once again, leadership training would most likely be beneficial for instructors that are drawn to these leadership positions.

It must also be noted that when high school FFA membership was correlated with the variables listed in the previous paragraph, the only significant relationship revealed was with number of leadership positions in local school or vocational department, and this relationship was negative. Similarly, no significant relationships were found between holding an FFA chapter office and these variables. These findings are important in that they reveal FFA experience had no positive significant influence on participants engaging in leadership roles. The question that arises is, why do FFA experiences not have more influence on participants' engagement in leadership roles as adults?

The demographic characteristics of agricultural science instructors that teach in rural areas differ from the demographic characteristics of agricultural science instructors in urban areas

When correlations were conducted with the data, differences between instructors from rural and urban school locations stand out. Instructors in rural locations tend to have a bachelor degree in agricultural education, were an FFA member in high school,

were an FFA chapter officer, were an FFA chapter above the chapter level, teach in a single-instructor department, and are less likely to present workshops for non-agriculture teachers.

In contrast, instructors in urban schools tend to not have a bachelor degree in agricultural education, were not an FFA member in high school, were not a chapter officer, are more likely to present workshops to non-agriculture teachers, and were more likely to teach leadership.

This is an interesting finding with possible implications when we begin to consider pre-service instructor programs that are preparing students to teach in urban locations, in particular the lack of FFA experience that appears with instructors in urban programs and the additional interest in leadership instruction.

Females and males differ in their leadership experiences

The leadership experiences of females and males differ. Significant relationships occurred between females and number of offices in high school organizations other than FFA and number of offices in college organizations. In contrast, males had significant relationships between the number of offices in professional education organizations, and the number of offices in civic organizations. These findings show the females tend to be more involved in high school organizations other than FFA and college organizations, while males tend to be more involved in professional education organizations and civic organizations. Questions that require further inquiry are: why are females drawn to leadership roles in high school and college organizations; and why do males tend to obtain leadership positions in professional and civic organizations?

There are significant age differences between genders

Of the participants in this study that indicated gender, 42 (26.9%) stated they were female and 114 (73.1%) indicated they were male. When an independent groups t-test was conducted to determine if significant differences existed between gender within variables, 12 variables proved to have significant differences at the *alpha* 0.05 level. Four of these variables were discussed in the previous section: number of offices held in high school organizations other than FFA, number of offices in college organizations, number of offices in professional education organizations, and number of offices in civic organizations.

Of particular interest within these significant variables are the variables that address time. For age the female average was 32.71 years old, and the male average was 41.73 years old. These averages reveal a 9.02 year age difference between female and male participants. Similarly, years teaching had a difference of 9.75 years between genders, with females having an average of 7.62 years teaching and males with 17.37 years teaching. Years in current position revealed an average for females of 5.29 years, and an average of 12.64 years for males, with a difference between the genders of 7.35 years. These findings may be caused by late entrance of females into the field of agricultural education (Foster, 2001). Further examination should be conducted to understand why these differences exist.

Objective Two: Determine the Extent to which Leadership Education is being Taught in High School Agricultural Science Classrooms

Based on the National FFA LifeKnowledge Curriculum, leadership is being taught in most agricultural science classrooms

Overall 92.9% of the participants are teaching at least one of the surveyed leadership concepts in their classroom, with an average of 18.73 surveyed leadership

concepts being taught in agricultural science classrooms. When viewed as a percentage of the 28 leadership concepts surveyed, agriculture instructors are teaching 69.9% of the leadership concepts in the average program.

For the purpose of statistical analysis, the answers to these 28 leadership concepts were summed to create one variable called instructor leadership teaching behavior. The greater the number of leadership concepts taught, the greater the level of instructor leadership teaching behavior.

Not surprising, the variable leadership course taught in agricultural science program had a significant correlation with instructor leadership teaching behavior. The fact that a leadership course was being taught in the agricultural science program may lend itself to the teaching of the leadership concepts surveyed.

Gender also had a significant correlation with instructor leadership teaching behavior, revealing that in this study males were more likely to teach leadership concepts than females. The findings of this study suggest that females teach less leadership than their male counterparts. Although it is possible that women prefer to teach less leadership, there are most likely other reasons for this finding.

A significant relationship was found with number of leadership courses taken in college. Taking a leadership course in college may provide sufficient leadership knowledge, and self-confidence of the subject matter, for the behavior of leadership instruction to occur.

Membership in professional development organizations had a significant relationship with instructor leadership teaching behavior. Perhaps the leadership experience gained in professional development organizations provides instructors with

the experience necessary to teach leadership. Alternatively, the experience of participating in a professional development organization may allow the instructor to appreciate the need for leadership instruction and motivate them to teach leadership.

Instructors teaching in an urban school location had a significant relationship with instructor leadership teaching behavior. This may be due to the nature of the urban programs. Urban programs tend to focus on leadership, environmental science, and biotechnology, while rural programs tend to focus on agribusiness, leadership and animal science (Foster, Bell, & Erskine, 1995; Trede & Russell, 1999). Many programs in urban locations have less emphasis on production agriculture skill areas and may be more likely to teach stand-alone courses on subject areas such as leadership (Trede & Russell, 1999).

Three variables studied in the modified Triandis behavioral model had correlations worth noting. First, instructor student expectations after leadership had been taught (r=0.21) had a significant positive relationship with instructor leadership teaching behavior. Next, instructor leadership knowledge (r=-0.05) had a negligible relationship with instructor leadership teaching behavior. Finally, instructor attitude towards the teaching of leadership (r=0.27) had a significant positive, relationship with instructor leadership teaching behavior. The modified Triandis behavioral model states that an individual's behavior is a function of attitude, knowledge, demographics, and expectations. That being the case, the findings of this study only partially support the modified Triandis model. This study found that instructor expectations and instructor attitude support the model, but instructor knowledge does not support this behavioral model. Additional discussion of these relationships will be provided in the sections of this chapter that deal specifically with these variables.

Objective Three: Based on National FFA LifeKnowledge Leadership Curriculum, Determine High School Agricultural Science Instructor Leadership Knowledge

Based on the National FFA LifeKnowledge Curriculum, the average participant has a moderate level of leadership knowledge.

Of the 15 questions asked to assess instructor leadership knowledge, the average instructor answered 10.19 questions correctly, equating to 67.9% correct. When using the median (10.00) as a dividing point for determining low and high knowledge, the mean (10.19) level of instructor knowledge may be considered moderate. If the knowledge scores are viewed as percentages it could be said that scores ranged from 27% correct to 100% correct, illustrating that some instructors have a great deal of leadership knowledge, while other instructors may benefit from some professional development in leadership. For instructors to teach a particular curriculum there must be a critical level of familiarity and knowledge with the subject matter for the instructor to feel comfortable teaching the curriculum (Cruickshank, 1990).

More information may be revealed when viewing specific question which the instructors most frequently and least frequently scored correctly. Responses to the instrument questions (see Appendix A) indicated the questions answered correctly most frequently by the participants were, "Something that someone wants to achieve is a: Goal," "Delegating tasks takes more time than it saves: False," and "Discouragement and giving up on a project is part of being responsible and accountable: False." Questions answered incorrectly most frequently by the participants were, "Being responsible and accountable means: Being answerable for key areas of our life with qualified people," "Personal self-worth is: The value I place in my own contributions," and "When a person has dedicated time and effort to improving themselves (and their lives) in the areas of social/family life, work/school life, and personal life, we call this: Balance." This

information may prove beneficial to individuals organizing professional development for the LifeKnowledge curriculum and other leadership training programs.

When instructor leadership knowledge was correlated with instructor leadership teaching behavior a non-significant relationship emerged. In the modified Triandis model, as knowledge increases so does the individual's behavior. It appears that participants believe they have knowledge of leadership concepts because many teach leadership concepts in class, but when evaluated using leadership definitions from the National FFA's LifeKnowledge curriculum, leadership knowledge is moderate.

The reason for this digression from the behavioral model deserves additional investigation. Based on the modified Triandis behavioral model, and the findings of this study, a perceived high level of leadership knowledge may be sufficient to influence behavior, rather than possessing a high level of factual leadership knowledge. Some instructors may equate leadership and leadership education with parliamentary procedure and public speaking, while the LifeKnowledge curriculum views leadership as knowing one's own self so they can influence other people. It may also be that instructors have a general knowledge of leadership, but knowledge about the specific elements of leadership, as presented in the LifeKnowledge curriculum, are unfamiliar to agriculture instructors.

Objective Four: Determine High School Agricultural Science Instructor Attitude towards Teaching Leadership

Most participants have a moderate attitude towards teaching leadership

The construct of instructor attitude towards the teaching of leadership was moderate with a range of 25 to 72 and an average of 64.69 out of 72. When the median (66.00) is designated as the dividing point between positive and negative scores, the

mean score (64.69) may be interpreted as moderate. The correlation of this variable to instructor leadership teaching behavior was significant and positive.

As mentioned previously, the modified Triandis model uses attitude as a predictor of behavior. This study validated that attitude is positively correlated with behavior and reinforces the importance attitude has on behavior. This finding supports Fishbein and Ajzen (1975), "attitude toward the behavior is often related to performance of the behavior." This also reveals that high school agricultural science instructors with a positive attitude toward teaching leadership may be more inclined to teach leadership.

Additionally, a significant positive correlation was found between instructor attitude toward teaching leadership and instructor expectations after leadership has been taught. This relationship helps to support the modified Triandis model, illustrating that an increase in attitude coincides with an increase in expectations.

Number of offices held in professional education organizations proved to be a negative relationship with instructor attitude towards the teaching of leadership. Although holding office in a professional education organization may at times be a challenging leadership experience, it may also be rewarding. This interesting finding deserves further investigation to fully understand the relationship.

Objective Five: Determine the Expectations that High School Agricultural Science Instructors have of the Agriculture Students after Leadership has been Taught

Based on the National FFA Life Knowledge Curriculum, most participants have moderate positive expectations of students after leadership has been taught

Of the 22 questions used to determine instructors expectations of students, the participant's responses ranged from 4 to 22, with an average of 17.45. If the mean is viewed as a percentage of the number of questions asked, then participants agreed with 80% of the expectations. When the median (18.00) is defined as the dividing point

between positive and negative expectations, the mean (17.45) reveals moderate participant expectations of students after leadership instruction.

Specific responses to expectation statements from section two of the questionnaire (see Appendix A), reveal participants responded "yes" most frequently to the following statements: "After my students learn about self-worth I would expect students to have greater confidence in their own ideas," "After my students learn about leaders I would expect students to identify ways they can lead others," and "After my students learn about goals I would expect students to demonstrate how to prioritize personal goals." Statements that participants responded "no" to most frequently were, "After my students learn about mentors I would expect students to set an appointment with their mentor," "After my students learn about personal values I would expect students to write a set of standards by which they will evaluate decisions," and "After my students learn about vision I would expect students to create a vision that others can see and internalize." This information may be beneficial to individuals planning professional development workshops for the LifeKnowledge curriculum or other leadership training. Areas in which instructors responded most frequently may not need to be addressed in training, while areas with lower response frequencies may need additional training in order that instructors may see how leadership training can prepare students to accomplish these activities.

Participant answers to these 22 questions were summated for statistical analysis. When instructor expectations were correlated with instructor leadership teaching behavior the relationship was significant. This finding supports the modified Triandis model and the work of other researchers (Fishbein et al., 1991), that a person's

expectations of the results of a behavior influence their performance of that behavior. In this case, instructors who expected students to benefit from leadership instruction were more likely to teach leadership in the classroom.

Other significant correlations with the variable expectations of instructor after leadership has been taught include the variables certified through a university agricultural teacher certification program, number of offices held in high school organizations other than FFA, instructor attitude toward the teaching of leadership, and teaching in a three-instructor department. The relationship with number of offices held in high school organizations other than FFA may illustrate that participants see a value in their high school leadership experience, and believe that leadership instruction will benefit others. The correlation with instructor attitude toward teaching leadership helps to support the theory of the modified Triandis model that expectations and attitude influence behavior. The relationship with teaching in a three-instructor department may support previous findings in this study that participants in multiple-instructor departments have time to pursue leadership activities and therefore may see benefits of leadership instruction, resulting in high student expectations.

Objective Six: Determine the Relationship between High School Agricultural Science Instructor Leadership Knowledge, Instructor Attitude towards Teaching Leadership, Instructor Expectations of Students after Teaching Leadership, and Instructor Demographics to Instructor Leadership Teaching Behavior

Leadership course taught in agricultural science program, urban location of school, gender, and instructor attitude toward the teaching of leadership are the variables that best explained leadership teaching behavior

The variables leadership course taught in agricultural science program, urban location of school, gender, and instructor attitude towards the teaching of leadership were included in the model that best explained total variance in agricultural science instructor

leadership teaching behavior. Regression analysis revealed that this model significantly explained 33% of the variance in instructor leadership teaching behavior, the dependent variable. Although explaining 33% of the variance is laudable, 67% still remains unexplained, allowing room for additional research in this area.

Based on this information, the best predictor of instructor leadership teaching behavior is if a leadership course is currently being taught in the agricultural science program. This would appear to be an expected finding, except for two relevant facts. First, the social norm is leadership consists of activities such as teaching parliamentary procedure and attending the state FFA convention, yet these were not the items measured to determine instructor leadership teaching behavior. The behavior construct used in the questionnaire asked instructors if instructors were teaching leadership concepts as leadership is defined in the LifeKnowledge curriculum, which does not include the social norms. This finding reveals that instructors teaching a leadership course in the agricultural science classroom were teaching leadership concepts similar to those found in the LifeKnowledge curriculum.

In this study, instructor attitude was an explanatory variable of leadership teaching behavior. This illustrates the importance of a moderate to positive attitude toward teaching leadership before leadership instruction will occur.

Gender was also an explanatory variable in this model, revealed that male participants in this study were more likely to teach leadership than female participants. Crosstabs was conducted to attempt to gain a further understanding of this relationship, but no additional information was revealed. There may be a number of explanations for this occurrence. It may be that female instructors in multiple instructor departments do

not have the opportunity teach courses that allow leadership concepts to be taught. Perhaps the locations at which female participants teach do not allow the flexibility for the incorporation of leadership concepts into the courses. Based on the findings of the study only speculative answers can be gleaned. The finding of this relationship raise a number of questions that require further research to fully understand. One question to be addressed is what courses are these female agriculture instructors teaching, and how do these courses compare to their male counterparts.

Finally, urban location of school was an explanatory variable in this study. Based on the findings of this study we have gained some insight into the demographic differences between urban and rural agriculture instructors, but do not have sufficient information to fully understand why urban location has such explanatory power. More research should be undertaken to better understand this relationship.

Recommendations

Based upon the findings and conclusions of this study, the following recommendations were made:

- Teacher preparation institutions should modify their programs to address the changing demographics of agricultural educators. Specifically, programs should address the growing number of female instructors and the increase in multi-instructor departments.

- The findings of this study suggest that teacher preparation institutions should be prepared to provide additional FFA training to pre-service instructors desiring to teach in an urban location. The findings of this study indicate that a larger percentage of instructors teaching in urban locations have limited FFA experience.

- Teacher preparation institutions have the potential to influence the adoption of the LifeKnowledge curriculum and should provide pre-service instructors with LifeKnowledge curriculum training so they will be prepared to teach leadership in agricultural science classrooms. Approximately 85% of high school agricultural science instructors graduated from a university agriculture teacher education program, indicating that these university programs, through pre-service training, can influence a majority of the instructors in the profession.

- FFA experiences should be reviewed and modified so youth may acquire skills that will encourage them to engage in leadership activities as an adult. The findings of this study indicate that high school FFA experiences have little influence on adult leadership involvement.

- Because enrollment in a college leadership course was positively related to leadership instruction, it is recommended that pre-service instructors be encouraged to take a leadership course so they will be better prepared to teach leadership concepts as an instructor.

- Because involvement in professional development organizations was related to leadership instruction and other leadership activities, it is recommended that agricultural science instructors be encouraged to become a member of a professional development organization. Through participation in these organizations instructors will have the opportunity to develop skills that allow them to advance professionally, develop a network of professionals outside of the education profession, and educate others about agricultural education.

- Since instructors are teaching leadership with a moderate amount of leadership knowledge, leadership professional development programs should be offered to increase instructor leadership knowledge. The results of the knowledge component of the instrument used in this study may be beneficial for developing these programs.

Suggestions for Additional Research

Based upon the findings and conclusions of this study, the following suggestions for additional research were made:

- Because of the changing demographics of agriculture instructors, a census study should be conducted to determine current demographic characteristics of instructors, and to determine if any trends exist.

- Determine why certain demographic characteristics influence the amount of leadership instruction. Specifically, determine why gender and urban school location influence leadership instruction in agricultural science classrooms.

- This study found that activity in professional education organizations had a negative affect on the participants' attitude towards teaching leadership. Additional research should be conducted to understand this relationship.

- Because of the differences of the leadership experiences between genders, additional research should be conducted to determine why males and females participate in different leadership organizations.

- Because participants' leadership knowledge scores based on the LifeKnowledge curriculum were moderate, additional research should be conducted to determine the knowledge instructors have related to leadership and how instructors define leadership.

- In order to better prepare agricultural science instructors to teach leadership, a study should be conducted to determine what leadership knowledge and skills a secondary agricultural education student should have upon graduation.

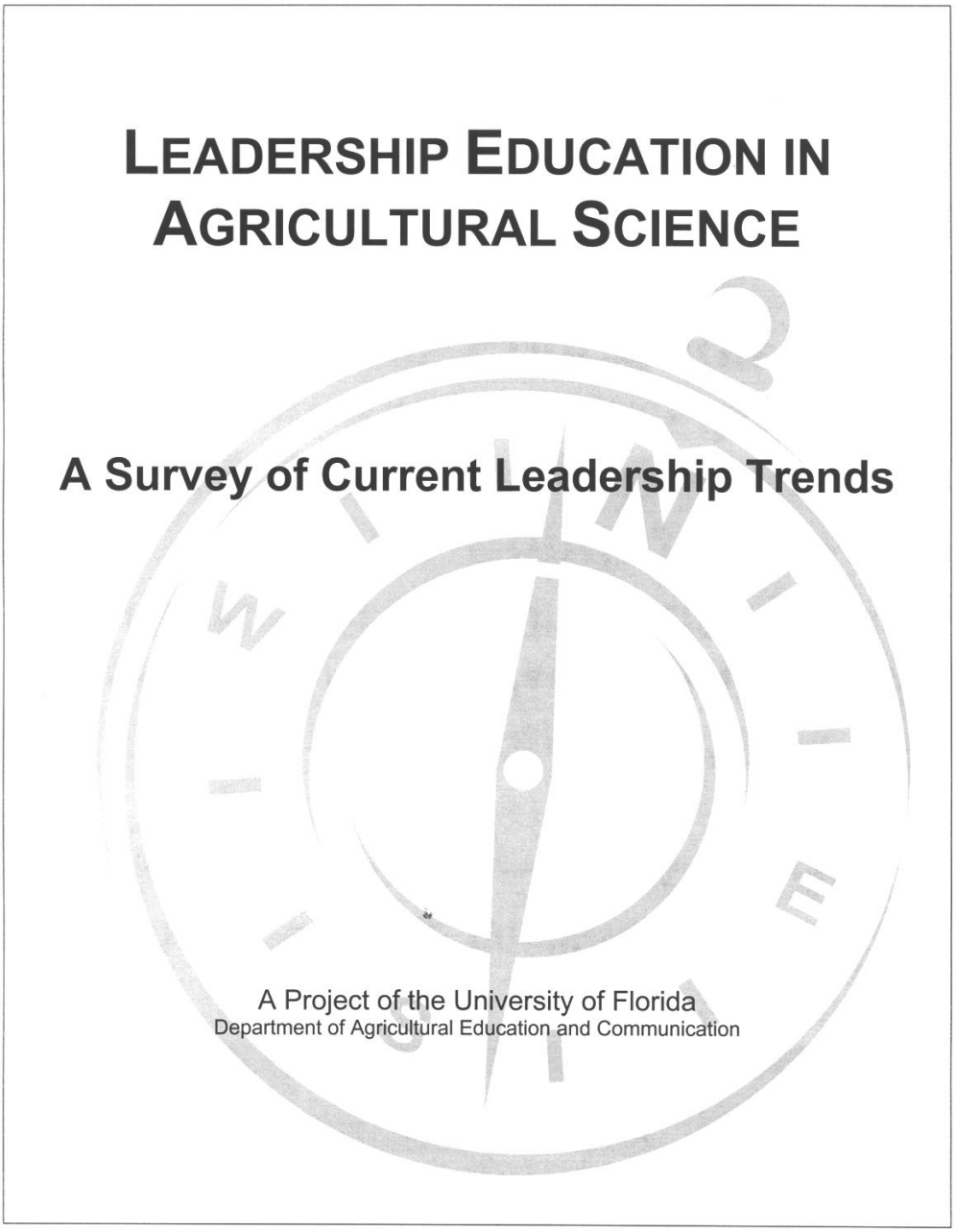
- Because of the relationships found with youth leadership activities and adult leadership engagement, research should be conducted to determine how youth leadership experiences impact adult leadership skills and leadership engagement. Specifically, determine why participant's past FFA experiences have little influence on leadership activity.

- Based on the modified Triandis behavioral model, further research should be conducted to determine why neither knowledge nor expectations were a function of behavior in this study.

- Because this study was conducted using only unit two of the LifeKnowledge curriculum, it is recommended that similar studies be conducted to explain teaching behavior for units one, three, four, and five of the Life Knowledge curriculum.

- A follow-up study should be conducted after five years of LifeKnowledge curriculum dissemination to determine if there is a change in instructor leadership teaching behavior

APPENDIX A
PAPER INSTRUMENT



LEADERSHIP EDUCATION IN AGRICULTURAL SCIENCE

A Survey of Current Leadership Trends

A Project of the University of Florida
Department of Agricultural Education and Communication

Figure A-1. Questionnaire Cover

Leadership Education In Agricultural Science:

A Survey of Current Leadership Trends

Thank you for your participation in this survey! Your completion of this questionnaire will help us to improve leadership curriculum for agricultural science teachers across the US. This survey questionnaire has been developed to determine the amount of leadership that agriculture instructors are teaching in agriculture classrooms.

This questionnaire consists of five sections. We anticipate that it will take approximately 20-25 minutes to complete. Please answer all questions as truthfully as possible. Your responses will be kept confidential and anonymous to the extent provided by law.

After you have completed the questionnaire, please sign the informed consent form, and place the questionnaire and the signed informed consent form in the enclosed return envelope. Postage will be paid by the University of Florida.

If you would prefer to access the questionnaire on the Internet, please go to http://aecresearch.ifas.ufl.edu/morgan/leadership-intro.htm. Once you have accessed the web page, enter your participant number, found in your cover letter. Your questionnaire answers will be sent directly to the University of Florida.

Once again, thank you for taking time from your busy schedule to complete this questionnaire. The time you invest in this project will help agriculture students throughout America.

Sincerely,

Mr. Chris Morgan, Graduate Assistant
acmorgan@ufl.edu

Dr. Rick Rudd, Associate Professor
rrudd@ufl.edu

UNIVERSITY OF FLORIDA

IFAS

College of Agricultural and Life Sciences

University of Florida, Dept. of Agricultural Education and Communication
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Figure A-2. Questionnaire Inside Cover

Section I
*Please indicate if you **formally teach specific lessons** that address these concepts in your classes by circling the appropriate answer.*

	In my classroom I formally teach a specific lesson in which students are taught:		
1	To define their core values	Yes	No
2	To identify the benefits of living by a set of personal values	Yes	No
3	To identify their personally held beliefs	Yes	No
4	Factors that influence their personal beliefs	Yes	No
5	To accept responsibility for their actions	Yes	No
6	Accountability for personal actions	Yes	No
7	The concept of character	Yes	No
8	The concept of integrity	Yes	No
9	Leaders are important	Yes	No
10	To identify leaders	Yes	No
11	To develop a vision for the future	Yes	No
12	Benefits of having a vision for the future	Yes	No
13	Factors that influence people's motivation	Yes	No
14	Methods of motivating others	Yes	No
15	To evaluate risks	Yes	No
16	The benefits of taking calculated risks	Yes	No
17	To properly measure their own self-worth	Yes	No
18	Factors that influence their self-worth	Yes	No
19	To describe their self-image	Yes	No
20	Factors that affect the way others see them	Yes	No
21	Benefits of making ethical decisions	Yes	No
22	Consequences of making unethical decisions	Yes	No
23	The benefits of living a balanced life	Yes	No
24	Efficient use of time	Yes	No
25	To articulate their goals	Yes	No
26	To prioritize their goals	Yes	No
27	The value of having a mentor	Yes	No
28	To select a mentor	Yes	No

Figure A-3. Questionnaire Section I

Section II

These questions address actions you expect your students to perform after they learn a specific content area. If you do not personally teach this area, please answer the question as to how you would expect the students to perform if they had learned that content area. ***Please circle "Yes," if you do expect students to perform this way, or "No," if you do not expect students to perform this way.***

1	After my students learn about personal values I would expect students to:		
	A. Write a set of standards by which they will evaluate decisions.	Yes	No
	B. Develop a personal value statement.	Yes	No
2	After my students learn about responsibility and accountability I would expect students to:		
	A. Properly manage their time to meet all of their obligations.	Yes	No
	B. Explain how their personal decisions effect other people.	Yes	No
3	After my students learn about vision I would expect students to:		
	A. Create a vision that others can see and internalize.	Yes	No
	B. Envision the desired outcome for a project or life goal.	Yes	No
4	After my students learn about motivation I would expect students to:		
	A. Identify factors that increase and decrease one's motivation.	Yes	No
	B. Actively motivate other students.	Yes	No
5	After my students learn about self-worth I would expect students to:		
	A. Accept their limitations and strengths.	Yes	No
	B. Have greater confidence in their own ideas.	Yes	No
6	After my students learn about balance in life I would expect students to:		
	A. Evaluate their activities based on their priorities.	Yes	No
	B. Be less concerned with the amount of income of a particular occupation and more concerned about quality of life of an occupation.	Yes	No
7	After my students learn about mentors I would expect students to:		
	A. Evaluate the adults with whom they associate and select a mentor.	Yes	No
	B. Set an appointment with their mentor.	Yes	No
8	After my students learn about goals I would expect students to:		
	A. Demonstrate how to prioritize personal goals.	Yes	No
	B. Design a written plan for personal goals with dates to attain the goals.	Yes	No
9	After my students learn about personal beliefs I would expect them to identify all the beliefs that influence their decisions.	Yes	No
10	After my students learn about character I would expect students to live a life of exceptional moral character.	Yes	No
11	After my students learn about leaders I would expect students to identify ways they can lead others.	Yes	No
12	After my students learn about taking risks I would expect students to analyze the rewards for taking risks.	Yes	No
13	After my students learn about self-image I would expect students to find ways to use their talents and interests.	Yes	No
14	After my students learn about time management I would expect students to use a planner or Daytimer® to schedule activities.	Yes	No

Figure A-4. Questionnaire Section II

Section III

These questions refer to your knowledge of leadership. Your answers will help us to evaluate existing curriculum and design professional development programs that are beneficial to agriculture teachers. ***Please circle the best answer:***

1 Personal belief systems are:
- A. A structure or framework that helps form, encourage, process and support beliefs
- B. Comparing what might not be known to what has been previously experienced
- C. Things believed in strongly; things that don't compromise or change

2 Being responsible and accountable means:
- A. Being reliable and following the rules
- B. Doing what we are asked to do
- C. Being answerable for key areas of our life with qualified people

3 Doing what is right even when no one is holding me accountable is:
- A. Integrity
- B. Responsibility
- C. Character

4 Vision is:
- A. Believing that success can and will come
- B. A mental picture of the future for a specific project or idea
- C. A perspective that something is possible

5 Personal self-worth is:
- A. How I see myself
- B. How others perceive me
- C. The value I place on my own contributions

6 When a person has dedicated time and effort to improving themselves (and their lives) in the areas of social/family life, work/school life, and personal life, we call this:
- A. Success
- B. Balance
- C. Self-fulfillment

7 Managing time to be productive is an example of:
- A. Setting goals
- B. Efficient time use
- C. Prioritizing

8 Something that someone wants to achieve is a (an):
- A. Idea
- B. Priority
- C. Goal

9 Discouragement and giving up on a project is part of being responsible and accountable.
- A. True
- B. False

10 Only people who know me can judge my character.
- A. True
- B. False

11 The most successful leaders listen to themselves more than they take advice from others.
- A. True
- B. False

12 Risks occur by choice.
- A. True
- B. False

13 Personal self-image includes the attributes height, weight and hair color.
- A. True
- B. False

14 Delegating tasks takes more time than it saves.
- A. True
- B. False

15 Goals written in the mind are as good as being written on paper.
- A. True
- B. False

Figure A-5. Questionnaire Section III

Section IV

*For the following pairs of words, place an "**X**" in the space nearest to the word of each pair that represents your **views towards teaching leadership**. Please be sure to mark each scale. Mark only one "**X**" for each pair of words.*

Example:

Hot :___:___:___:___:_X_:___: Cold

Teaching Leadership is:

1	Unnecessary	:___:___:___:___:___:___:	Necessary
2	Boring	:___:___:___:___:___:___:	Interesting
3	Positive	:___:___:___:___:___:___:	Negative
4	Practical	:___:___:___:___:___:___:	Impractical
5	Useful	:___:___:___:___:___:___:	Useless
6	Helpful	:___:___:___:___:___:___:	Not Helpful
7	Wanted	:___:___:___:___:___:___:	Unwanted
8	Not Worthwhile	:___:___:___:___:___:___:	Worthwhile
9	Valuable	:___:___:___:___:___:___:	Worthless
10	Successful	:___:___:___:___:___:___:	Unsuccessful
11	Wise	:___:___:___:___:___:___:	Foolish
12	Bad	:___:___:___:___:___:___:	Good

Section V

The following questions inquire about you, your school, and your leadership experience. Many questions ask for a specific number. If you cannot recall the precise number, then a good approximation will be fine.

1 How would you describe the location of the community in which your school is located?
❑ Rural (Less than 10,000) ❑ Suburban (10,000-49,999) ❑ Urban (50,000 and over)

2 What is your highest level of education?
❑ Less than a bachelor's degree ❑ Bachelor's degree
❑ Master's degree ❑ Ph.D.

3 What is your gender? ❑ Male ❑ Female

4	Were you certified through a university agriculture teacher certification program?	Yes	No
5	Was your bachelor's degree in Agricultural Education?	Yes	No
6	Were you an FFA member in high school?	Yes	No
7	Were you an FFA chapter officer?	Yes	No
8	Were you an FFA officer above the chapter level?	Yes	No
9	What is your age? (Enter age in years)		☐
10	How many years have you taught?		☐
11	How many years have you been in your current teaching position? (Enter number of years)		☐
12	How many agriculture teachers are in your school? (Enter number of teachers)		☐
13	How many leadership courses did you take in college? (Include college courses only. Enter approximate number of courses)		☐

Figure A-6. Questionnaire Sections IV and V

14	How many offices did you hold in student leadership organizations other than FFA? (i.e. 4-H, VICA, DECA, Student Council, National Honors, etc. Enter number of offices)	
15	How many offices did you hold in student organizations at the college level? (i.e. Collegiate FFA, Alpha Tau Alpha, fraternities, sororities, student government, etc. Enter number of offices)	
16	How many offices have you held in professional education organizations? ((i.e. State Education Association, ACTE, NAAE, etc. Enter number of offices)	
17	How many offices have you held in civic organizations? ((i.e. Lions, Kiwanis, etc. Enter number of offices)	
18	How many professional development organizations do you belong to? (i.e. Toastmasters, etc. Enter number of organizations)	
19	How many offices have you held in professional development organizations? (Enter number of offices)	
20	How many regional or state agricultural education committees have you participated in? (i.e. State FFA Board of Directors, curriculum development committees, textbook evaluation committees, etc. Enter number of committees)	
21	How many workshops or training seminars have you conducted for agriculture teachers? (Enter number of workshops or training seminars)	
22	How many workshops or training seminars have you conducted for non-agriculture teachers? (Enter number of workshops or training seminars)	
23	How many leadership positions have you held in your local school or vocational department? (i.e. department head, Accreditation Review Committee, etc.)	
24	How many times have you attended the National FFA Advisors Washington Leadership Conference Program?	
25	Is a leadership course taught in your agricultural science program?	Yes No
26	Please tell us what leadership curriculum or textbook you currently use:	
26	Where do you believe that most leadership education occurs for your students?	

Continued on next page

Figure A-7. Questionnaire Section V Continued

27 What are some factors that would lead you to formally teach more leadership in your classroom?

28 What factors limit the amount of time you teach leadership?

29 If we have not addressed something that you believe is important, please use this space to record your concern.

Thank You!

Thank you for your participation in this survey. Your time and effort is very appreciated and will be valuable for improving leadership curriculum in the future.

Please fold the questionnaire, insert into the return envelope, and drop in mailbox. Thank you!

UNIVERSITY OF FLORIDA IFAS College of Agricultural and Life Sciences

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PO Box 110540 Gainesville, FL 32611
Ph 352 392 0502 Fx 352 392 9585

Figure A-8. Questionnaire Qualitative Questions

APPENDIX B
INTERNET INSTRUMENT

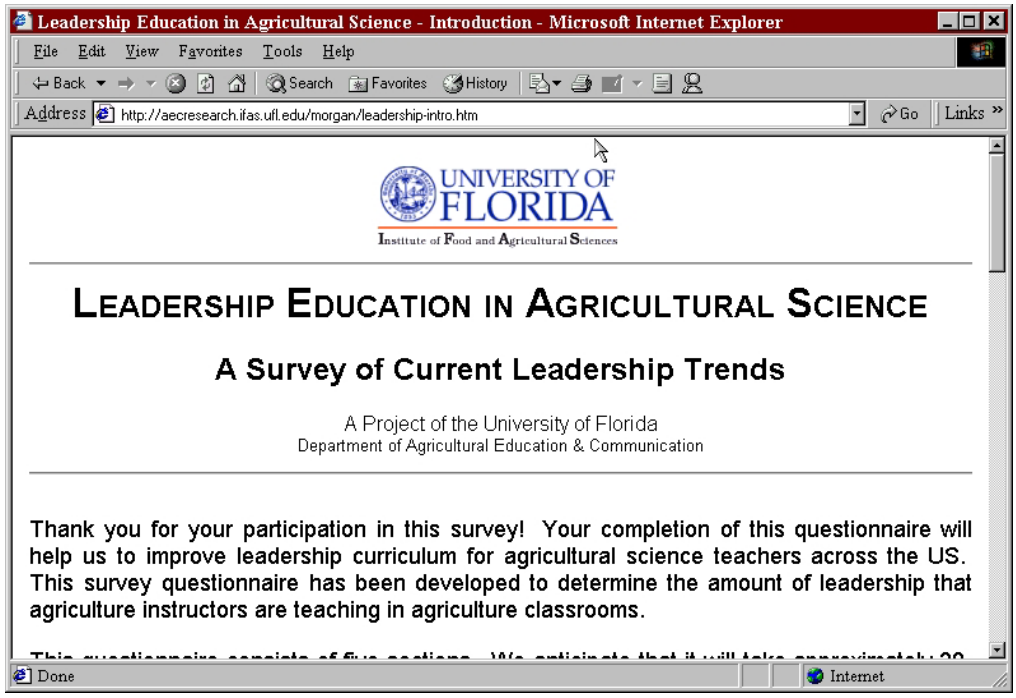

Figure B-1. Screen Capture of the Introductory Web Page

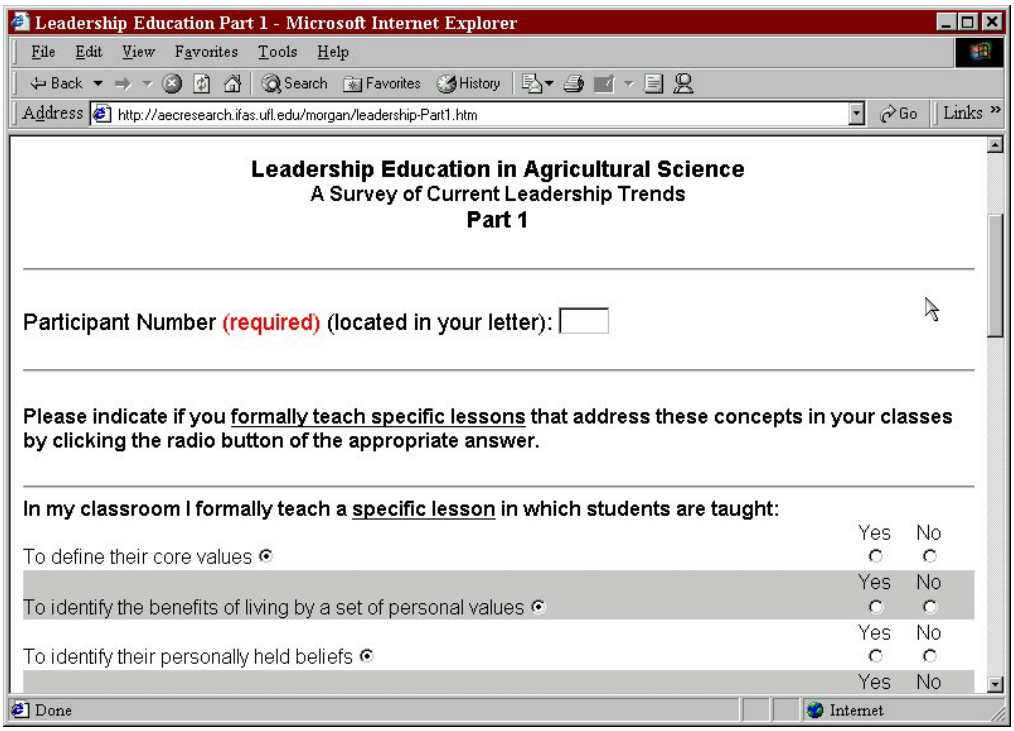

Figure B-2. Screen Capture of Section I Web Form Questionnaire, Measuring Instructor Leadership Teaching Behavior

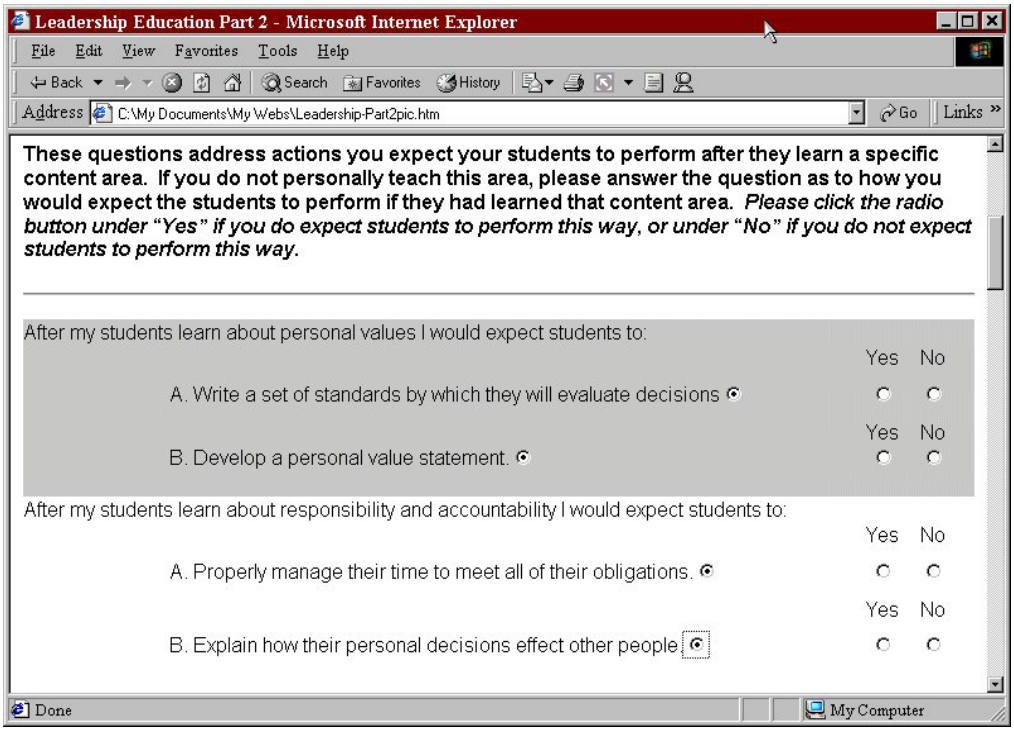

Figure B-3. Screen Capture of Section II Web Form Questionnaire, Measuring Instructor Expectations of Students after Leadership Instruction

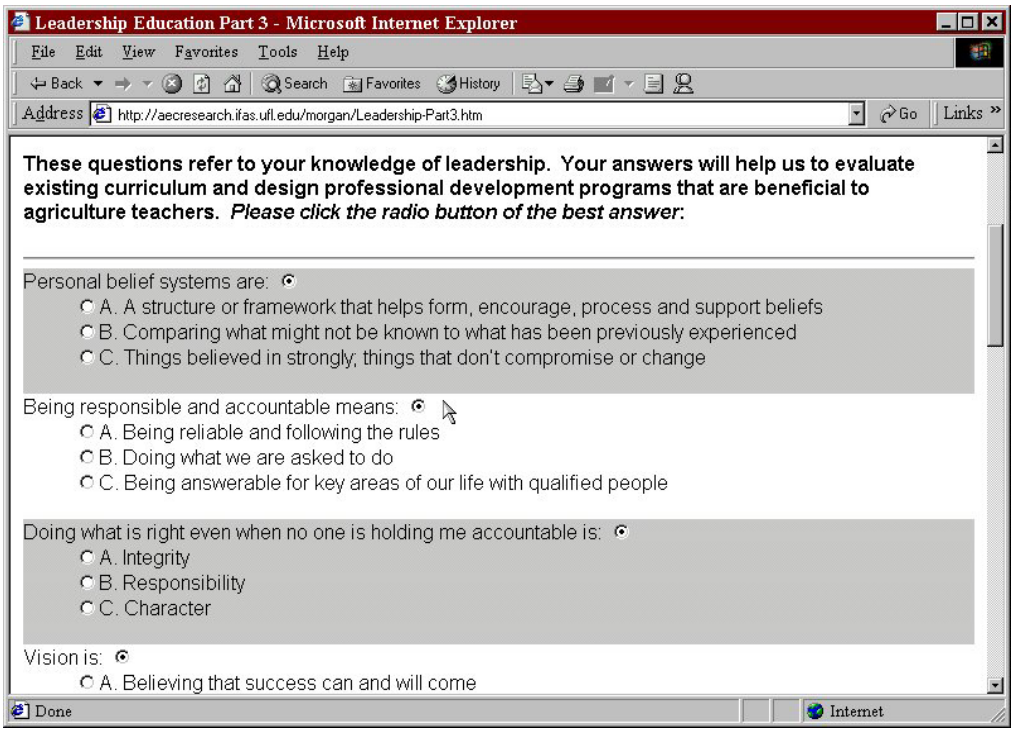

Figure B-4. Screen Capture of Section III Web Form Questionnaire, Measuring Instructor Leadership Knowledge

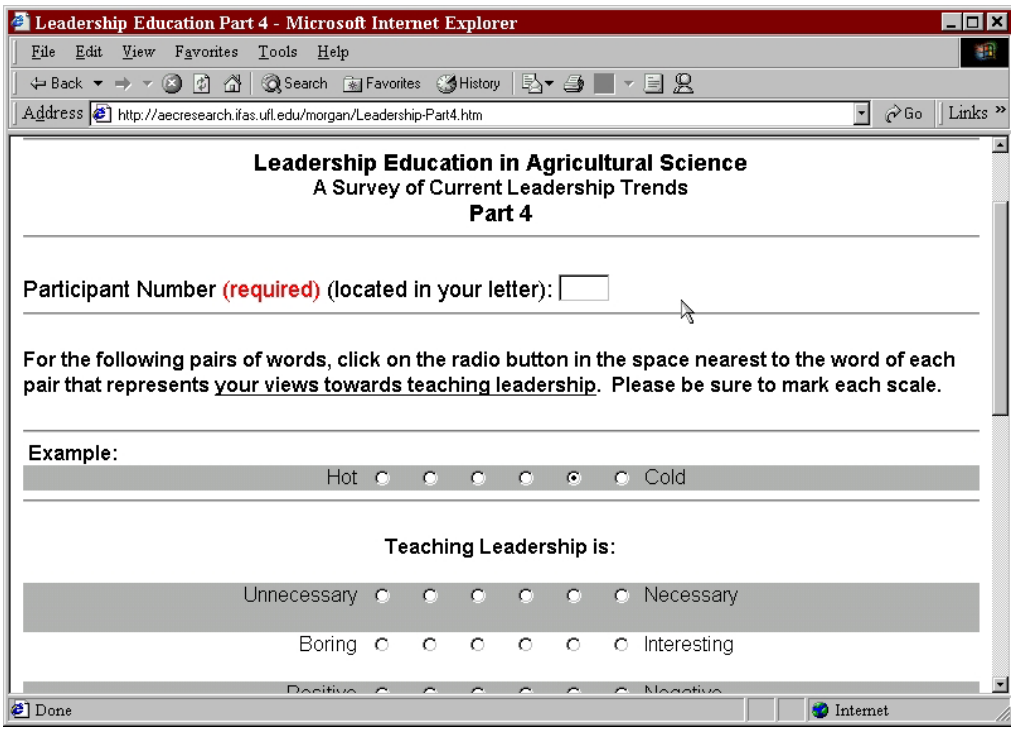

Figure B-5. Screen Capture of Section IV Web Form Questionnaire, Measuring Instructor Attitude toward Teaching Leadership

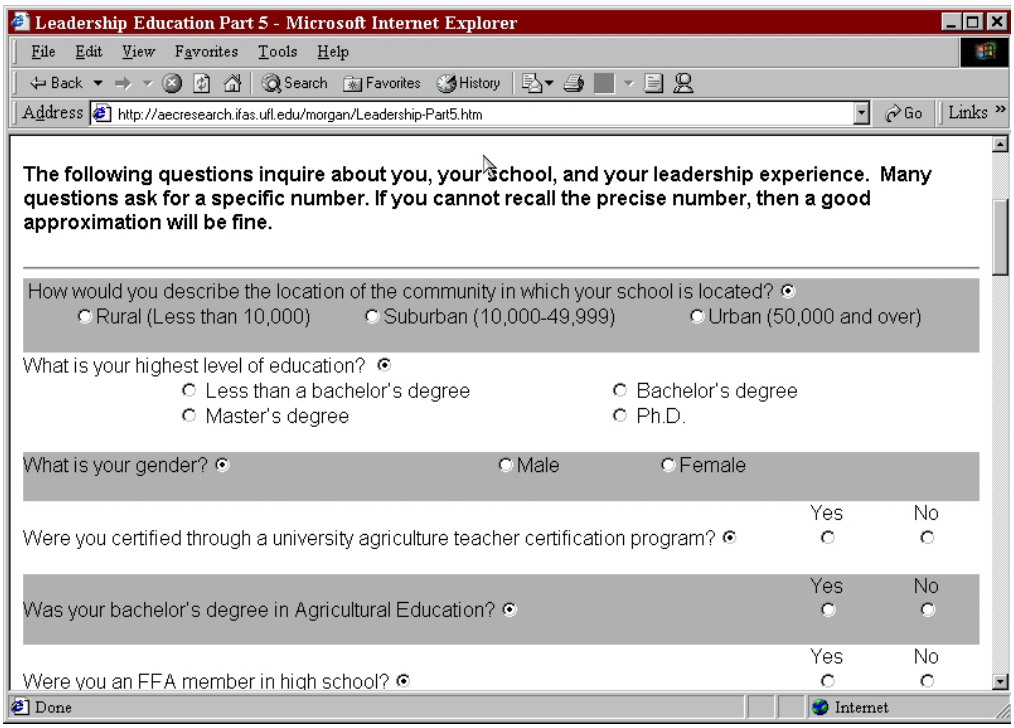

Figure B-6. Screen Capture of Section V Web Form Questionnaire, Instructor Demographics

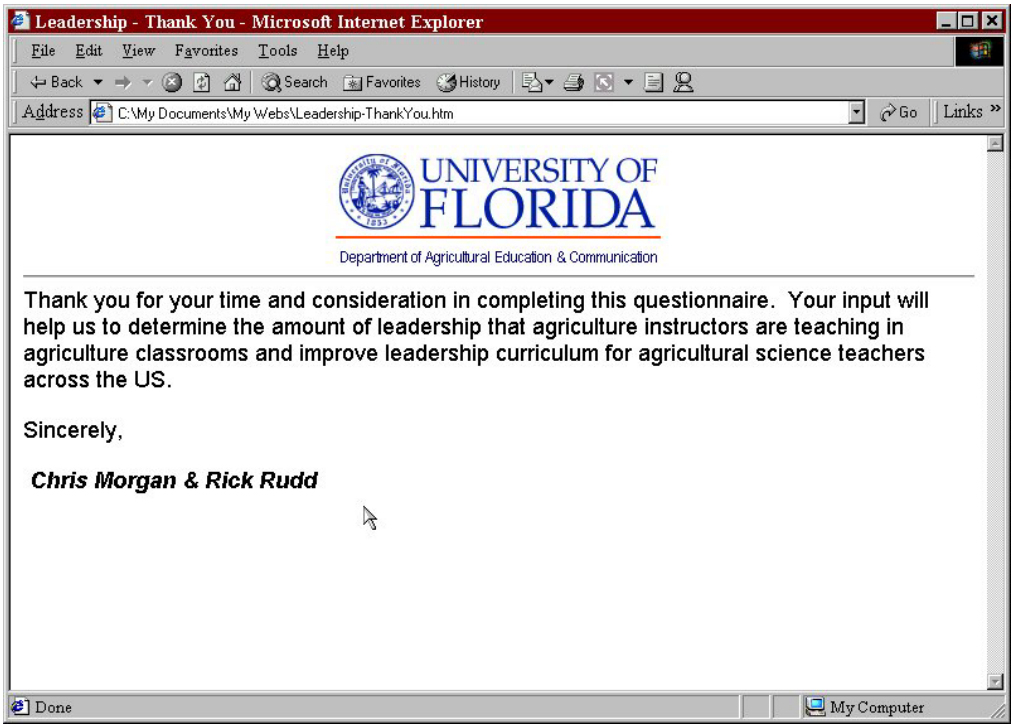

Figure B-7. Screen Capture of Thank You Web Page

APPENDIX C
SURVEY CORRESPONDENCE

UNIVERSITY OF FLORIDA

Institute of **F**ood and **A**gricultural **S**ciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

FFA Advisor
Participant Number 1

April 5, 2004

Dear FFA Advisor,

You have been selected to participate in a national study to determine the amount of leadership formally taught in agricultural science classrooms. Your input is vital to help us understand the current status and direction of leadership education in the agricultural science classroom.

It is our belief that excellent teaching occurs in many agricultural science programs. It is also our belief that agricultural science instructors are the best source for information related to current teaching practices occurring in agricultural science classrooms. This study seeks to determine how much leadership is being taught in agricultural science classrooms and what factors influence the teaching of leadership.

In the next few days you will receive a questionnaire. We anticipate that it will take approximately 20-25 minutes to complete. Please answer all questions as truthfully as possible. Your responses will be kept confidential and anonymous to the extent provided by law. If you do not want to participate, please contact me requesting to be removed and we will not include you in the study. Please remember that by not participating your valued input will not be available to improve future curriculum.

If you prefer to access the questionnaire via the Internet, please go to the web address http://aecresearch.ifas.ufl.edu/morgan/Leadership-Intro.htm and enter your participant number 1. If you have any questions, please feel free to contact me at 352-392-0502 ext. 223 or at acmorgan@ufl.edu.

Once again, thank you for your anticipated participation in this study. Your time and effort is very appreciated and will be valuable for improving leadership curriculum in the future.

Respectfully,

Chris Morgan
Graduate Assistant

Rick Rudd, Ph.D.
Associate Professor

Figure C-1. Pre-notice Letter

UNIVERSITY OF FLORIDA

Institute of **F**ood and **A**gricultural **S**ciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

FFA Advisor
Participant 1

April 8, 2004

Dear FFA Advisor,

Thank you for taking this opportunity to participate in this national study to determine the amount of leadership formally taught in agricultural science classrooms. Your input is valued and appreciated.

Please take a few minutes to complete the enclosed questionnaire. The questionnaire consists of five sections which should take 20-25 minutes to complete. The first section asks if you teach specific lessons on topics relating to leadership. The next section addresses how you expect students to act after you teach a particular leadership concept. The third section consists of both multiple choice questions and true/false questions to determine your level of leadership knowledge. The fourth section asks your views about teaching leadership. The final section asks questions related to you, your school, and your community.

After completing the questionnaire, please sign the enclosed Informed Consent form, and place the questionnaire and the signed Informed Consent form in the enclosed Business Reply Mail envelope. Postage will be paid by the University of Florida.

The questionnaire may also be accessed via the Internet by entering the following address into your web browser: http://aecresearch.ifas.ufl.edu/morgan/Leadership-Intro.htm. To complete the questionnaire on-line you will need to enter your participant number 1.

Your participation in this study will help us to understand how much formal leadership education is occurring in agricultural science classrooms and help us to refine leadership curriculum. Therefore, your participation has the potential to influence the shape of leadership curriculum in years to come.

Thank you for taking time to complete the questionnaire. If you have any questions, please feel free to contact me at 352-392-0502 ext. 223 or at acmorgan@ufl.edu.

Once again, thank you for participating in this study. Your time and effort is very appreciated and will be valuable for improving leadership curriculum in the future.

Respectfully,

Chris Morgan
Graduate Assistant

Rick Rudd, Ph.D.
Associate Professor

Figure C-2. Cover Letter for First Questionnaire

Informed Consent

Project title: Leadership Education in Agricultural Science: An Evaluation of Current Leadership Trends.

Purpose of the research study: To solicit input from high school agricultural science teachers to determine: (1) the amount of leadership being taught in agricultural science classrooms; (2) the attitude of agricultural science teachers towards teaching leadership; (3) the level of leadership knowledge of agricultural science teachers; (4) the expectations of agricultural science teachers of students if leadership is taught, and: (5) demographic information about agricultural science teachers.

What will you be asked to do in the study: Complete one instrument.

Time required: Approximately 20-25 minutes.

Risks: No risk of physical, psychological or economic harm to participants is foreseen.

Benefits/Compensation: There is no compensation, monetary or otherwise, to you for participation. There are no benefits to participation in this study.

Confidentiality: Your identity will be kept confidential to the extent provided by the law. Your responses to the instrument will be anonymous.

Voluntary participation: Your participation is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study:

Chris Morgan, M. Ed., Graduate Assistant
University of Florida
Dept. of Agricultural Education and Communication
305 Rolfs Hall; PO Box 110540
Gainesville, FL 32611-0540
Ph: 352-392-0502 x223 Fx: 352-392-9585
E-mail: acmorgan@ufl.edu

Rick Rudd, Ph.D., Associate Professor
University of Florida
Dept. of Agricultural Education and Communication
305 Rolfs Hall; PO Box 110540
Gainesville, FL 32611-0540
Ph: 352-392-0502 x239 Fx: 352-392-9585
E-mail: rrudd@ufl.edu

Whom to contact about your rights in the study:
University of Florida Institutional Review Board Office
PO Box 112250
University of Florida
Gainesville, FL 32611-2250
ph: 352-392-0433

Agreement:
I have read the procedure described above. I voluntarily agree to participate in the procedure and have received a copy of this description.

Participant: _____ Date: _____

Principal Investigator: _____ Date: _____
Chris Morgan, M.Ed.

Supervisor: _____ Date: _____
Rick Rudd, Ph.D.

Figure C-3. Informed Consent Form

Dear Agriscience Instructor,

Approximately one week ago a questionnaire seeking your input about leadership education in agricultural science was sent to you. Your name was randomly selected from a national list of agricultural science instructors.

If you have already completed and returned the questionnaire to us, please accept our sincere thanks. If not, could you please find time today to complete it? I know this is a busy time of year, but if you could take a few moments to provide your ideas and experiences we would appreciate it greatly. It is only by asking people like you to share your thoughts and insights that we can determine how much leadership is being taught in agricultural classrooms and improve future curriculum.

Please complete the previously mailed questionnaire and return it to us using the postage paid envelope. You may also access the questionnaire on the Internet at **http://aecresearch.ifas.ufl.edu/morgan/leadership-intro.htm**. Your participant number is **«Part No»**. If you would prefer that a questionnaire be mailed to you, please contact me at (352) 392-0502 ext. 223 or at acmorgan@ufl.edu and one will be mailed to you immediately.

Thank you in advance for your time and consideration. Please return the questionnaire by **April 28, 2004.**

Sincerely,
Chris Morgan, Graduate Assistant

UNIVERSITY OF FLORIDA
Institute of Food and Agricultural Sciences

University of Florida Department of Agricultural Education and Communication; 352-392-0502

Figure C-4. Thank You/ Reminder Postcard

UNIVERSITY OF FLORIDA

Institute of **F**ood and **A**gricultural **S**ciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

FFA Advisor
Participant Number 1

April 28, 2004

Dear FFA Advisor,

Approximately three weeks ago you were sent a questionnaire seeking your input about leadership education in agricultural science. As of today we have not received your questionnaire. If you have recently returned the questionnaire, thank you for your assistance in this study. If this is the case, this letter and your questionnaire have probably crossed in the mail.

The comments of people who have already responded have provided some insight into the leadership being taught in high schools across the country. We believe the results from this study will be very useful in determining how much leadership is currently being taught in agricultural science classrooms and help to improve future curriculum.

I am writing again because of the importance that your questionnaire has for helping to get accurate results. Although we have sent questionnaires to teachers throughout the country, it's only by hearing from nearly everyone in the sample that we can be sure that the results are truly representative.

I realize the end of a semester can be a busy time of the year, however your ideas are highly valued. Please take a few minutes today to complete the study. We anticipate that the questionnaire will take approximately 20-25 minutes to complete.

I have enclosed another copy of the questionnaire in the event that you did not receive the first mailing. After completing the questionnaire, please sign the enclosed Informed Consent form, and place the questionnaire and the signed Informed Consent form in the enclosed Business Reply Mail envelope. Postage will be paid by the University of Florida. The questionnaire may also be accessed via the Internet by entering the following address into your web browser: http://aecresearch.ifas.ufl.edu/morgan/Leadership-Intro.htm. To complete the questionnaire on-line you will need to enter your participant number "1."

We hope that you will fill out and return the questionnaire soon, but if for any reason you prefer not to answer it, please let us know by returning your blank questionnaire in the postage paid envelope or sending an email to acmorgan@ufl.edu. If you have any questions, please contact me by email or phone at (352) 392-0502 x223.

Thank you in advance for participating in this study. Your time and effort is very appreciated and will be valuable for improving leadership curriculum in the future.

Respectfully,

Chris Morgan
Graduate Assistant

Rick Rudd, Ph.D.
Associate Professor

Figure C-5. Cover Letter for Second Questionnaire

APPENDIX D
TABLES

Table D-1. Pearson's Product Moment Correlations Between Age, Years Teaching, Years Teaching in Current Position, and Selected Variables (*n*=157)

Variable	Age	Years Teaching	Years Teaching in Current Position
Gender[2]	0.39*	0.43*	0.37*
Number of leadership positions held in local school or vocational department	0.35*	0.39*	0.25*
Number of offices held in professional education organizations	0.30*	0.37*	0.40*
Number of offices held in college organizations	-0.28*	-0.20*	-0.12
Number of offices held in professional development organizations	0.28*	0.28*	0.22*
Number of offices held in civic organizations	0.25*	0.32*	0.19*
Number of workshops and seminars for agriculture teachers	0.25*	0.29*	0.32*
Number of regional or state agricultural education committees participated in	0.23*	0.29*	0.29*
Number of workshops and seminars for non-agriculture teachers	0.22*	0.22*	0.10
FFA officer above chapter level[1]	-0.20*	-0.17*	-0.12
Number of offices held in high school organizations outside of FFA	-0.19*	-0.14	-0.14
Level of education	0.18*	0.25*	0.31*
FFA member in high school[1]	-0.17*	-0.04	0.05
FFA chapter officer[1]	-0.16*	-0.03	0.02
Number of times attended Advisor's Washington Leadership Conference	0.16	0.18*	0.21*
Instructor leadership teaching behavior	0.12	0.16*	0.12
Instructor attitude towards the teaching of leadership	0.09	0.08	0.17*
Certified through a university agriculture teacher education program[1]	0.08	0.10	0.16*
Age	--	0.91*	0.69*
Years teaching	--	--	0.80*

Notes: * = $p<0.05$; [1] = Yes coded as 1, No coded as 0; [2] = Males coded as 1, Females coded as 2.

Table D-2. Pearson's Product Moment Correlations between Number of Instructors at School and Selected Variables (*n*=156)

Variable	Number of Agricultural Science Instructors	One Instructor	Two Instructor	Three Instructor	Four or More Instructors
Rural school location [1]	-0.34*	0.27*	-0.05	-0.22*	-0.23*
Suburban school location[1]	0.31*	-0.20*	0.03	0.16	0.19*
Location of school	0.28*	-0.24*	0.05	0.21*	0.20*
Number of workshops and seminars for non-agriculture teachers	0.21*	-0.19*	0.04	0.26*	0.20*
Number of offices held in high school organizations outside of FFA	0.20*	-0.11	-0.04	0.11	0.42*
Level of education[1]	0.18*	-0.15	0.01	0.22*	0.05
Number of offices held in professional education organizations	0.18*	-0.21*	0.15	0.13	0.14
Number of regional or state agricultural education committees participated in	0.15	-0.21*	0.13	0.22*	0.02
Number of workshops and seminars for agriculture teachers	0.14	-0.15	0.07	0.12	0.18*
Instructor leadership teaching behavior	0.13	-0.12	0.04	0.18*	0.07
Number of offices held in college organizations	0.13	-0.07	-0.07	0.23*	0.10
Number of leadership courses taken in college	0.12	-0.08	-0.02	0.21*	-0.06
Urban location of school[1]	0.12	-0.14	0.04	0.13	0.11
Number of offices held in civic organizations	0.06	-0.13	0.09	0.22*	-0.07
Bachelor degree in agricultural education	-0.10	-0.06	0.17*	0.02	-0.07
Number of agricultural science instructors in school	--	-0.78*	0.35*	0.39*	0.40*
One instructor department[1]	--	--	-0.81*	-0.28*	-0.17*
Two instructor department[1]	--	--	--	-0.16*	-0.10
Three instructor department[1]	--	--	--	--	-0.03

Notes: *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

Table D-3. Pearson's Product Moment Correlations Between Committee Participation, and Workshops and Seminar Presentations and Selected Variables (*n*=158)

Variable	Number of Regional or State Agricultural Education Committees Participated in	Number of Workshops and Seminars for Agriculture Teachers	Number of Workshops and Seminars for Non-Agriculture Teachers
Number of workshops and seminars for agriculture teachers	0.50*	--	--
Number of offices held in professional education organizations	0.46*	0.33*	0.20*
Number of offices held in professional development organizations	0.39*	0.25*	0.09
Number of leadership positions in local school or vocational department	0.32*	0.49*	0.35*
Years teaching	0.29*	0.29*	0.22*
Years in current teaching position	0.29*	0.32*	0.10
Age	0.23*	0.25*	0.22*
Three-instructor department[1]	0.22*	0.12	0.26*
One-instructor department[1]	-0.21*	-0.15	-0.19*
Number of workshops and seminars for non-agriculture teachers	0.21*	0.42*	--
Membership in professional development organizations	0.21*	0.25*	0.13
Number of offices held in college organizations	0.19*	0.12	0.16*
Number of times attended Advisor's Washington Leadership Conference	0.19*	0.38*	0.07
Number of offices held in civic organizations	0.16	0.09	0.20*
Number of agricultural science instructors in school	0.15	0.14	0.21*
Number of offices held in high school organizations outside of FFA	0.15	0.14	0.24*
Instructor leadership teaching behavior	0.11	0.09	0.08
Instructor leadership knowledge	0.10	0.19*	-0.02
Location of school	-0.03	0.16	0.24*
Rural school location[1]	0.03	-0.16	-0.17*
Urban location of school[1]	-0.01	0.11	0.28*

Note. *=$p<0.05$; [1]=Yes coded as 1, No coded as 0.

Table D-4. Pearson's Product Moment Correlations between High School and College Leadership Activities and Selected Variables (n=158)

Variable	Number of Leadership Courses in College	Number of Offices in High School Organizations	Number of Offices in College Organizations
Number of offices held in high school organizations outside of FFA	0.02	--	--
Number of offices held in college organizations	0.14	0.52*	--
Leadership course taught in agricultural science program[1]	0.28*	-0.03	0.07
Instructor leadership teaching behavior	0.22*	0.09	0.07
Three instructor department[1]	0.21*	0.11	0.23*
Bachelor's degree in agricultural education[1]	0.16*	0.16	0.12
Membership in professional development organizations	0.13	0.23*	0.14
Number of agricultural science instructors in school	0.12	0.20*	0.13
Number of regional or state agricultural education committees participated in	-0.10	0.15	0.19*
FFA member in high school[1]	0.10	0.08	0.20*
FFA chapter officer[1]	0.09	0.15	0.22*
Instructor expectations after leadership has been taught	0.09	0.19*	0.07
Years teaching	-0.08	-0.14	-0.20*
Number of workshops and seminars for non-agriculture teachers	0.07	0.24*	0.16*
FFA officer above chapter[1]	-0.06	0.16*	0.31*
Age	-0.06	-0.19*	-0.28*
Four or more teacher department[1]	-0.06	0.27*	0.10
Gender[2]	-0.05	-0.19*	-0.18*

Note. *=$p<0.05$; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

Table D-5. Pearson Product Moment Correlations between Instructor Leadership Teaching Behavior and Variables Studied

	r	*n*	Sig. (2-tailed)
Leadership course taught in agricultural science program[1]	**0.44**	**156**	**0.00**
Instructor attitude towards the teaching of leadership	**0.38**	**160**	**0.00**
Gender[2]	**0.23**	**156**	**0.01**
Number of leadership courses taken in college	**0.22**	**156**	**0.01**
Instructor expectations after leadership has been taught	**0.21**	**162**	**0.01**
Membership in professional development organizations	**0.20**	**159**	**0.01**
Number of offices held in professional development organizations	**0.20**	**159**	**0.01**
Urban location of school[1]	**0.19**	**154**	**0.02**
Three-instructor department[1]	**0.18**	**157**	**0.03**
Years teaching	**0.16**	**158**	**0.05**
Number of offices held in civic organizations	0.15	157	0.06
Location of school	0.13	154	0.11
Number of agricultural science teachers in school	0.13	156	0.11
One-instructor department[1]	-0.12	157	0.14
Age	0.12	157	0.14
Years in current teaching position	0.12	158	0.14
Number of leadership positions in local school or vocational department	0.11	158	0.11
Number of regional or state agricultural education committees participated in	0.11	159	0.18
Bachelor's degree in agricultural education[1]	0.09	157	0.27
Certified through a university agriculture teacher education program[1]	0.09	158	0.27
Number of offices held in high school organizations outside of FFA	0.09	158	0.28
Number of workshops and seminars for agriculture teachers	0.09	158	0.29
Suburban school location[1]	-0.08	154	0.32
Number of workshops and seminars for non-agriculture teachers	0.08	159	0.31
Number of offices held in college organizations	0.07	159	0.36
Four-or-more instructor department[1]	0.07	157	0.38
Rural school location[1]	-0.06	154	0.43
Instructor leadership knowledge	-0.06	161	0.49
Number of times attended Advisor's Washington Leadership Conference	0.06	159	0.49
FFA member in high school[1]	0.05	158	0.58
FFA officer above chapter[1]	-0.04	157	0.62
Two-instructor department[1]	0.04	157	0.63
Level of education	-0.03	158	0.71
Number of offices held in professional education organizations	0.03	158	0.74
FFA chapter officer[1]	-0.01	158	0.94

Note. Bold=$p<0.05$; [1]=Yes coded as 1, No coded as 0; [2]=Males coded as 1, Females coded as 2.

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BIOGRAPHICAL SKETCH

Alan Christian "Chris" Morgan is the husband of his best friend Susan Morgan and the father of three wonderful children, Tyler, Allison and Spencer. He enjoys spending time with his family and traveling.

Chris was born in San Francisco, CA, and adopted into a wonderful family at the age of three months. While a youth he lived in California, Pennsylvania, and Texas. He graduated in 1982 from Duncanville High School, and then attended Texas A&M University earning a Bachelor Degree of horticulture in 1988.

With his degree in hand, he moved to Houston, TX where he worked in the horticulture industry for eight years in management and sales. During this time he met and married his best friend, Susan.

Feeling led to teach, Chris returned to Texas A&M to earn a teaching certificate and a master's degree in agricultural education, awarded in 1997. Chris taught agricultural science four years at Marcus High School in Flower Mound, TX. During this time he taught a wide variety of courses, from introduction to agriculture to floral design. He was also instrumental in procuring a greenhouse for the program and encouraged students to become involved in many functions including livestock shows and National FFA Convention.

Believing it was God's desire for him to teach at the college level, Chris moved his family to Gainesville, FL so he could pursue a Ph.D. in agricultural education and leadership at the University of Florida. There he shared an office with 12 outstanding

graduate students, and had the opportunity to teach college courses and conduct research. After many struggles, both academic and personal, he graduated in August 2004.

Chris' goal is to equip students for successful careers. He is currently pursuing this goal as a faculty member at Oklahoma State University.