FACTORS ASSOCIATED WITH WORK ATTITUDES AND WORK BEHAVIORS OF SECONDARY AGRICULTURAL EDUCATION STUDENTS IN SELECTED COUNTIES IN VIRGINIA

by

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(ABSTRACT)

Literature illustrates that work attitudes and work behaviors of young agricultural workers are of major concern to employers, even exceeding their concern about academic skills students bring to the work environment. Little consistency is found in the research about the relationships of various factors to work attitudes and work behaviors of agricultural education students.

The primary purpose of this study was to examine work attitudes and work behaviors of students in secondary agricultural education programs in selected counties in Virginia and to assess the relationships and predictive value of certain variables to work attitudes and work behavior. The independent variables were gender, academic skills (reading, mathematics, and writing), supervision, work variety, nature (importance) of job, relationship of work and school, and learning on the job.

Survey methods were used to collect the data. The study participants consisted of 477 sophomore, junior, and senior students from three rural counties in Virginia. Descriptive statistics, factor analysis, Pearson product-moment correlation, and multiple regression analysis were used to analyze the data.

Factor analysis of the work attitude statements resulted in identification of three factors which were named cynicism about work, intrinsic motivation about work, and extrinsic motivation about work. Factor analysis of work behavior

statements resulted in a single factor that had to do with honest behavior on the job.

The major results of this study follow. Relationship of school and work was associated with three of the four work dimensions (cynicism about work, extrinsic motivation and work behavior). Relationship of school and work, developing academic skills (reading, mathematics, and writing), work variety, an opportunity to learn on the job, and the nature (importance) of the job are related to good work attitudes and honest or ethical work behaviors. A closer relationship of school and work was associated with more cynicism toward work. Use of academic skills (reading, mathematics, and writing), nature (importance) of the job, and learning on the job were associated with the intrinsic motivation factor of work attitude. Students who were intrinsically motivated valued self-pride, responsibility for one's internal feelings about work, and personal development.

The best predictors of the intrinsic motivation factor of work attitudes were an opportunity to learn on the job and work variety. Male students were more extrinsically motivated toward work. Males valued material comfort, promotion, status among peers, and economic well-being while females were more oriented toward pride in good quality workmanship, dignity of work, and hard work. The relationship of work and school, nature (importance) of job, and learning on the job were associated with the extrinsic motivation factor of work attitudes. The best predictors of the extrinsic motivation factor of work attitudes were the relationship of work and school, nature (importance) of the job, and learning on the job. The relationship of the work environment and school was associated with the work behavior factor (honest or ethical work behavior). The best predictor of the work behavior factor was the relationship of work and school.

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Chapter 1

INTRODUCTION

> We recommend that more communities experiment with multiple elements to construct an improved school-to-work system. Students should learn in schools and in the workplace and in other community settings. We are convinced that a combination of elements will work best to reduce further the dropout rate and, more important, to produce high school graduates who are more mature, more responsible, and more motivated to build better lives for themselves, their families and their communities. (William T. Grant Commission on Work, Family and Citizenship, 1988)

One major problem that faces the United States today is how to prepare high school graduates in agricultural education who are adequately equipped with knowledge and experience to contribute productively to the industry of agriculture and life sciences and to improve the economic standard of the nation. The effort to solve this problem is hindered by the attitudes and behaviors of teenagers in the workforce. Most employers are concerned that young people lack work ethics and habits (Hawaii State Board for Vocational Education, 1989; Raizen, 1989). Particularly while the teenagers are enrolled in high school, research has shown that working is correlated with, and may cause a range of dysfunctional, unethical, or self-destructive behaviors and attitudes (Greenberger & Steinberg, 1986).

To produce high school graduates who are more mature, more responsible, and more motivated to build better lives

is the concern in the above excerpt from the William T. Grant Commission. Those concerned with preparing high school students in agricultural education for work must understand how to deal with the work attitudes and work behaviors of these students, and develop the curriculum accordingly. This study addressed the situation by investigating the work attitudes and work behaviors of high school students in agricultural education.

Conceptual Framework

In the following section a conceptual framework is presented that explores the trends of teenage employment and attitudes and behaviors of teenage workers. These are necessary to establish: (a) the rate of entry of teenagers into the workforce, (b) the effect of employment on in-school teenagers, and (c) the problematic attitudes and behaviors of teenagers (including those in agricultural education).

Trends in Teenage Work in America

The labor-force activity of in-school youths was negligible prior to 1940. However, over the next 40 years, a dramatic increase in student employment occurred and has continued up to the present. The labor-force participation of enrolled students increased substantially between 1947 and 1980 (Greenberger & Steinberg, 1986). Evidently this was mostly due to the increased rates of participation by 16

and 17 year olds and, especially to that of girls in this age group. This influx increased the proportion of school-going boys of this age in the labor force from 27% in 1947, to 44% in 1980. During the same period, the labor force participation of similar age group girls increased from 17% to 41%. Other studies have placed the participation of adolescents in the workforce at higher levels. For example, a 1980 survey of 60,000 high school sophomores and seniors in High School and Beyond (Lewin-Epstein, 1981) projected that 75% of 16 to 17 year-old boys and 68% of girls were in the labor force.

Several reasons are put forth for the increasing participation of youth in the labor force in this nation. These include some interlocking economic, social, and psychological changes that occurred over the past several decades. First, as noted by Ginzberg (1977), unique opportunities for students to work were created by the rapid growth of the service and retail sectors of the U.S. economy between 1940 and 1976. Approximately 9.3 million service jobs and 6.6 million retail jobs were created during this period, bringing about a 63% increase in the size of the labor force.

Regarded as "bad" jobs by adults, most of the new jobs were characterized by low wages, less than full-time hours of employment, irregular shifts, nighttime and weekend work,

seasonal and other types of intermittence, low job security, minimal or nonexistent fringe benefits, and poor prospects for promotion. However, these so-called "bad" jobs were regarded by youngsters as attractive and as avenues of opportunities. These types of jobs were looked upon by the youngsters as flexible and convenient. The irregular and off-hour work coincided quite neatly with the fragmented schedules of the youngsters, and the often less than minimum wage was acceptable to the youths as they do not work to support themselves and others but to earn spending money. Finally, since most teenagers do not expect to continue in these jobs once they finish their high school education, future-oriented aspects of the jobs tend to be far less important (Greenberger & Steinberg, 1986).

Increasingly, school-age adolescents have entered the workplace by holding part-time jobs after school that consume substantial portions of their afternoons, school nights, and weekends. Although this phenomenon is not new, it is unique in many respects. The work they perform is different, both in kind and in organization, and the workers have different social origins and different motivations for employment than their earlier counterparts.

Several advocates of increased participation of young people in the world of work include youth policy experts, school critics, guidance counselors, representatives of

industries and firms that depend on high school students to fill part-time jobs, and parents of teenage workers. Among the claims put forth in favor of working while in school is that young people need better preparation for adult roles and responsibilities. They argue that the workplace would offer experiences that the school and family could not, and that work experience would lead youngsters to become more responsible, cooperative, and participatory members of society. The workplace would also help youngsters learn more about the roles adults fill; acquire work habits, job skills, and practical experience from the adult community and the kinds of deviations from norms that are tolerated; and build up a supportive network of elders to whom they could turn for advice and help (National Commission on Youth, 1980; President's Science Advisory Committee, Panel on Youth, 1973).

A second claim by advocates of increased participation of young people in the world of work was that the structure of tasks in the school and the criteria by which rewards are allocated fail to foster cooperation and a sense of responsibility for others. The workplace, they posit, seems likely to enhance these capabilities because of critical distinctions between going to school and going to work. Advocates believe that initiative and decision making would be required and rewarded at work, and the youngsters would

learn that some tasks cannot be accomplished independently but require mutual cooperation (Greenberger & Steinberg, 1986).

A third argument put forth by advocates was that the youngsters would learn job skills not taught in school and have the opportunity to practice and apply the academic skills they had acquired in the classroom (Steinberg & Dornbusch, 1990). A final contention was that work experience for youths would reduce crime and delinquency (Carnegie Commission on Policy Studies in Higher Education, 1980), as the wages earned while in school help their families financially, or underwrite their own luxury expenditures.

On the other hand, critics of such work situations warn that a superficial ability to learn adult roles can be achieved at the expense of development of self-understanding or clarification of social experience (Erickson, 1959). In their opinion, such youngsters may acquire the appearance but not the substance of maturity. They contend that true maturity requires the development of complex cognitive structure, including a stable sense of who one is; how one gets to be that way; what the world is, and should be like; and how one can "put it all together" in a coherent and meaningful way of life (Greenberger & Steinberg, 1986).

In recent years, the need to ascertain the merit of competing perspectives on adolescent work in agriculture has led to various research attempts in this regard. Some of these studies are explored in this section, and their findings and conclusions are used as the conceptual framework for the present study.

Impact of Teenage Employment

Numerous efforts have been made to understand the impact of employment on in-school teenagers. While most of these assessments were concerned with educational outcomes, others have focused on noneducational results.

The phenomenon of student employment, and the possible negative consequences of labor-force participation during high school have been the subject for several studies including those of Greenberger and Steinberg, 1981; Greenberger, Steinberg, and Vaux, 1981; and Steinberg, Greenberger, Garduque, and McAuliffe, 1982; and Steinberg, Greenberger, Garduque, Ruggiero, and Vaux, 1982. Most importantly, these studies revealed that extensive involvement (employment in excess of 15-20 hours per week) of youngsters in the labor force during the school year diminished school performance and school involvement, led to increased drug and alcohol use, decreased closeness to parents, and resulted in the development of cynical attitudes toward work itself.

Based on the research findings of Barton, 1989; Fraser and Charner, 1987; Greenberger and Steinberg, 1986; Stone, Stern, Hopkins, and McMillion, 1990; and Steinberg 1989, four conclusions were drawn: (a) students who spend more time working while in high school on average earn more money in the first few years after leaving high school, compared to others who do not attend college; (b) students who spend more time working do less well in high school and obtain less additional school after high school; (c) students who work in excess of 20 hours per week have negative effects on school performance; and (d) working under certain conditions is correlated with, and may cause, a range of dysfunctional, unethical, or self-destructive behaviors and attitudes among high school students.

Other studies of the impact of work status and intensity of employment have focused on the effect of employment on the GPA (grade point average) of youngsters. The results have often yielded inconsistent findings. In the High School and Beyond data, Lewin-Epstein (1981) found that sophomores who worked did not differ from their non-working peers in GPA, while senior boys who were employed reported a lower cumulative GPA than those who did not have jobs. In a different case, students in four Wisconsin high schools who had never worked during the school year had

higher cumulative GPAs than students who had held jobs (McNeil, 1984).

Much less research has focused on noneducational outcomes of student employment. Bachman, Johnston and O'Malley, 1981; and Greenberger, Steinberg, and Vaux, 1981, found that drug and alcohol use was higher among workers than nonworkers, especially among students who worked long hours. Gottfredon (1985) found that contrary to expectation, employment did not appear to deter delinquent activity. Rather, as Ruggiero, 1984; and Shannon, 1982 pointed out, working may actually increase deviant behavior, particularly among middle-class youngsters.

Attitude of Teenage Workers

Increasingly, managers have complained that the American workforce today does not have the same values as previous generations. Sadly, evidence indicates that the claims of these managers are generally correct. Today's workforce, especially young workers, do not have the same attitudes as previous generations toward the importance of work, pride, and craftsmanship (Cherrington & Stannard, 1980). To this group of workers, there seems to be a general notion that work is something to be avoided rather than performed.

Curry (1976) claimed that work attitudes and orientation of teenagers develop through relationships with

many variables, including family background, community size, gender, intelligence and educational success, curricular choice, and others. Studies of the relationship of family background to work attitudes have yielded inconsistent results. Kennane and Pable (1962) studied the relationship of work attitudes and family background factors of 121 eleventh grade students. They found a positive correlation between students having high social status and having intrinsic work attitudes when compared to students with families of lower social status. Lee (1971) found that students from families with high social status were less concerned about the extrinsic rewards of work than were students with low social status. Other studies (Davis, 1973; McMillion, Stern, Stone, and Hopkins (1990) reported relationships between socioeconomic levels and work attitudes.

Community size was found to relate to work attitudes by Humbert (1964) and Lee (1971). These studies concluded that urban students attached more value to work which involved the interests of others than did rural students. Also, students from nonmetropolitan areas had a more extrinsic attitude orientation than those from metropolitan areas.

Most studies comparing the work attitude orientation of males to females found that males were more oriented toward extrinsic work attitudes or material comfort, promotion, and

social well-being, while females were more oriented toward pride in good quality workmanship, dignity of work, and hard work (Gribbons & Lohnes, 1968; Humbert, 1964; Schwargeller, 1959; Thompson, 1966). However, in contrast, Dipboye and Anderson (1959) studied the attitudes of over 1000 students at the 9th and 12th grade levels, and found little difference in the attitude toward work by boys and girls.

Studies have also indicated that intelligence was related to work attitudes. A study of 240 rural youths from different high schools reported a significant relation between intelligence and work attitude orientations (Schwargeller, 1959). Perrone (1965) studied junior high school students and found that less intelligent or poor achieving students were less concerned with intrinsic occupational satisfaction than more intelligent or higher achieving girls. A more recent study by Stone et al. (1990) found that students who report less conflict between their job and their performance in school expressed more motivation to do good work and less cynicism toward work. Because the opportunity to learn on the current job and degree of physical challenge stand out as predictors of motivation to do good work in general, the authors concluded that students whose current jobs make greater use of their skills and abilities are less cynical about work.

Little consistency is found in the research reports on the relationship of the curriculum to work attitudes. While Dittenhafer (1972) found that college preparatory students require a higher degree of intellectual endeavor and have a desire to work with people, vocational-technical students are more oriented toward things than people. Davis (1973) found that both college preparatory students and vocational-technical students placed more value on achievement than students in the general education program. Dipboye and Anderson (1959) found that college-bound students were less similar to each other than were vocational-technical students in their value patterns. Also, college-bound students placed more value on interesting work than did vocational-technical students. Finally, the research by Garbin (1970) explored the most important work values of youths. He found that a majority ranked work they liked, opportunities for advancement, security, and good pay as the most important work values.

Behavior of Teenage Workers

Greenberger and Steinberg (1986) indicated that part-time work consumes time for some youngsters while a majority of adolescents have substantial time and energy commitments to other extracurricular activities, family responsibilities, and peer relations. The addition of extensive working hours to their schedule strains

youngsters' adaptational resources and produces undesirable behavioral consequences and health problems. Working has adverse effects on adolescents' health and well-being under certain conditions. Examples are the quality of work that is perceived as dull, routine, and meaningless, and exposure to physical and chemical hazards of blue-collar workers. These types of work environments are psychological and physical stressors on adolescent workers.

In summary, the conceptual framework presented for the study of work attitudes and work behaviors of teenagers in the workforce, including agricultural education students, has shown that 75% of 16 or 17 year-old boys and 68% of girls were in the labor force. The conceptual framework included (a) trends in teenage work in America, (b) impact on teenage employment, (c) attitudes of teenage workers, and (d) behavior of teenage workers.

Statement of the Problem

Policy experts, school critics, guidance counselors, representatives of industries, and others consider the attitude and behavior of teenagers toward work as having the most significant influence on the success or failure of any teenage work program. There has been increased pressure to develop pedagogical methods to teach positive work attitudes and work behaviors to high school agricultural education students. As a result, those responsible for curriculum

implementation and development in agricultural education must understand the attitudes and behaviors of students toward work.

Despite the increased research in work attitudes and work behaviors of high school students in general, more research is necessary to understand the work attitudes and behaviors of students enrolled in agricultural education programs in high schools. This necessity was emphasized by the supervisor of agricultural education in Virginia when he wrote that a study of work behaviors and work attitudes of students enrolled in agricultural education would help determine the needed values by employers and by society. Research is needed to provide a sound foundation for developing the future curriculum (G. A. Anderson, personal communication, May 5, 1992). The need to understand the work attitudes and behaviors of this student population formed the basis for this study. The problem was a lack of information concerning work attitudes and their relationship to facets of the work situation of high school students in agricultural education, as well as a lack of information concerning work behaviors and their relationship to facets of the work situation of high school students in agricultural education.

Purpose of the Study

The purpose of the study was to examine work attitudes and behaviors of students involved in agricultural education programs in Augusta, Rockingham, and Shenandoah Counties in Virginia.

This study was designed to answer the following research questions:

Research Question 1: What is the relationship of work attitudes of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Research Question 2: What are the best predictors of work attitudes of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Research Question 3: What is the relationship of work behavior of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Research Question 4: What are the best predictors of work behavior of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and

writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Rationale for the Study

According to Bracey (1991) 80% of American employers expressed concern about the skills of young workers. The study found that young people lacked work ethics, including not showing up on time or not showing up at all for work, and not working hard when they are present. This is not a desirable situation and therefore must be rectified in order to strengthen the United States economy, and the country's ability to compete in the world economy.

In order to put forth solutions to address this problem, it was imperative that more understanding be developed concerning the nature of work attitudes and behaviors of high school students being prepared for work in the agricultural industry. This study should facilitate the understanding of attitudes and behavior of agricultural education students toward work. The study also should benefit students, educators, practitioners, and policy makers in the following ways:

1. To educators, the understanding of correlates and predictors of work attitudes and work behaviors of agricultural education students should aid in the development of work experience programs that help

address the problem of poor work attitudes and work behaviors.

2. Both practitioners and policy makers in agricultural education should benefit from the results of this study and could guide the effort to plan and allocate resources in agricultural education.

Limitations of the Study

Any generalizations from this study should be subject to the following limitations.

1. This study was based on a survey research design. Consequently, no attempt was made to control or manipulate the independent variables.
2. The population for this study consisted of sophomore, junior, and senior students enrolled in secondary agricultural education programs in a three-county area of Virginia. Therefore, any generalizations from this study to locations outside of Virginia or even outside the three-county area should be made with caution.

Organization of the Study

This study is organized into five chapters. Chapter 1 introduces the research problem of the study. In addition, the purpose of the research is discussed, a conceptual model of the research questions developed, and the limitation and delimitation of the study outlined. Chapter 2 provides a review of related literature, while chapter 3 outlines the

research design for the study. Chapter 4 contains a presentation of the research findings, and chapter 5 includes a summary of the findings, conclusions, implications and recommendations.

Definition of Terms

The terms and phrases used in the study are defined as follows:

1. Agricultural Career. Progressive sequence of agricultural occupations held by an individual during his/her workable life.
2. Agricultural Occupation. An occupation that requires agricultural knowledge and skills. The primary instructional areas which also serve to classify agricultural occupations are: agricultural production, agricultural supplies and services, agricultural mechanics, agricultural products processing and marketing, ornamental horticulture, agricultural resources, and forestry (Herren & Donahue, 1991).
3. Agricultural Occupations Curriculum. Vocational education programs for students preparing for careers which require knowledge and skills of an agricultural nature in order to perform the duties of the occupation.

4. Attitude. A basic predisposition or a basic way in which an individual is ready to experience a situation.

5. Behavior. The term refers to what students actually do in their work.

6. Cooperative Education. A method of vocational education instruction for individuals who, through written cooperative arrangements between the school and employers, receive instruction by including required academic courses and related vocational instruction of students in school with a job in any occupational field, but the two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and his or her employability. Work periods and school attendance may be an alternate half days, full days, weeks, or other periods of time in fulfilling the cooperative program (U.S. Congress, 1990).

7. Extrinsic Work Characteristics. Extrinsic work characteristics comprise those statements pertaining to work characteristics which are associated with the context of the work environment. These extrinsic work characteristics (salary, supervision, interpersonal relations,

promotion and working conditions) are external motivators for work.

8. Home-Based Enterprise. Refers to those work experience programs that are not school-based, but rather are individually owned and operated from homes.

9. Intrinsic Work Characteristics. Work characteristics consist of those statements which are associated with the content of work itself. The intrinsic work characteristics (responsibility, sense of pride, self-respect, and the work itself) are internal motivators for work.

10. Likert-type Scale. An attitude scaling technique in which respondents rate attitude statements on a scale of strongly agree, agree, disagree and strongly disagree (McIver & Carmines, 1981).

11. Nonfarm Agricultural Occupation. An occupation involved in supplying the farmer, and facilitating the production, processing, servicing, or distribution of plants, animals and agricultural products not usually performed by farmers and also deals with practical application of plant and animal science not related to farming such as animals in zoos.

12. School-Based Enterprise. This category includes school farms, forests, greenhouses, etc. which are run as businesses and provide supervised work experience for enrolled students.
13. Supervised Agricultural Experience Program. Student experience that consist of all the practical agricultural activities of educational value conducted by students outside of class and laboratory instruction or on school-released time for which systematic instruction and supervision are provided by their teachers, parents, employers, or others. SAEP includes cooperative education, home-based enterprises, and school-based enterprises. SAEP is synonymous with supervised occupational experience program which appears in all pre-1989 literature and references.
14. Work/Project Program. A term used in the questionnaire to cover both nonownership and ownership experience arrangements.
15. Work Values. A set of beliefs providing an orientation toward work by secondary agricultural education students having a supervised agricultural experience program.

Chapter Summary

This chapter presented a major problem that faces the United States today in preparing high school graduates in agricultural education who are adequately equipped to contribute productively to the industry of agriculture and to improve the economic standard of the nation. Literature related to the conceptual framework explored the trends in work of school-age adolescents, the impact of teenage employment, and attitudes and behaviors of teenage workers.

The chapter also consisted of information pertaining to the following: statement of the problem, research questions for the study, rationale for the study, limitations of the study, organization of the study, and definition of terms.

Chapter 2

LITERATURE REVIEW

The phenomenon of student employment and the possible consequences of labor-force participation during high school have been the subject of several studies. In order to understand the work attitudes and behaviors of agricultural education students involved in part-time work while in high school, it was necessary to review previous studies on the topic. The first section of the review of literature explores and describes the nature of part-time employment. The second section explores the work-education option, and the third reviews the previous research on students' attitudes and behaviors. The last section presents the definitions and description of work situations, work attitudes, and work behaviors as used in this study.

Part-Time Employment in Agricultural Education

The use of part-time employment in preparing secondary school students takes several forms. Whether referring to ownership projects or cooperative education or other forms of directed work experience, critics and proponents alike point out several benefits.

Properly administered work experience or volunteer service programs should equip the students with self-management, autonomy, initiative, and the ability to participate in the well-being of society according to

McMillion, Stone, Hopkins, and Stern (1989). Lorence and Mortimer (1981) and Mortimer and Lorence (1979b) found that the autonomy accruing from such jobs contributed to a greater degree of involvement in work, a more positive self-concept, and interest in work as a means of helping other people and obtaining intrinsic rewards. Other researchers such as Adams, Mangum, Stevernon, and Seninger, (1978), Barton and Fraser (1978), and Goodwin (1980) found positive correlations of education and training to employment and earnings.

A different perspective, more contemporary in its origins, focuses on the intrinsic economic and social value of work to America. Work experience benefits the students and the nation, it is argued by: (a) helping students become more employable by learning to learn on the job, (b) creating income generating graduates who aid in maintaining the present high standard of living in the future, (c) developing more socially and vocationally mature individuals who are aware of social and economic interdependencies, and (d) reinforcing self-concepts by developing an inventive and innovative future workforce to sustain the competitiveness of the American business structure in both the international and domestic arenas.

In spite of the benefits enumerated above, certain drawbacks to part-time employment during the school year are

reported in other studies. In most cases, these drawbacks are associated with situations in which work is not supervised, or in instances where the work is deemed or perceived as irrelevant by the students. For example, studies by Greenberger and Steinberg (1986) found correlations between working conditions and a range of dysfunctional behaviors among young high school students.

A different version of negative attitudes associated with part-time employment among high school students was put forth by Walther (1976). His focus was on the conflicts between the attitudes and behaviors prevalent among disadvantaged youths and those required for successful participation in the primary labor market. Walther observed that employment and training programs force disadvantaged youth to choose between "street skills" and behavioral styles appropriate to a work setting. Therefore, given that youth spend more time in settings that encourage street skills and gain more support from those skills from their peers, employment and training programs offer only a weak countervailing force, particularly in a labor market that offers minimal opportunities.

Finally, Bobbitt (1969) explored the attitudes between pupils enrolled in a concurrent work-education program without school released time and pupils enrolled in a concurrent work-education program with school released time.

He found little differences in the attitudes of the two groups toward their work options. However, he strongly recommended further investigation in this regard.

Work Education Options in Agriculture

Various forms of school directed work experience exist. However, this study reviewed only three forms, namely: cooperative education, home-based enterprise, and school-based enterprises or work experience.

Cooperative Education

Cooperative education, a program designed for upper level high school students who have specific vocational career objectives, owes most of its growth to the Vocational Education Act of 1963. It involves a cooperative arrangement between the school and business employers. The student spends part of the day in school, and part at a worksite (training station) where the student is paid a wage. Cooperative education students are supervised by the teacher-coordinator from the school and by a job sponsor from the business where the training is done. Frequent visits are made by the coordinator to the cooperating business to evaluate and improve the quality and scope of the student's occupational experience (Heinemann, Defalco & Smelkinson, 1992). Today, cooperative education helps to provide closer liaison and cooperation between the school and the workplace.

In agricultural education the term supervised agricultural experience (SAE) is used to include cooperative education, home enterprises, school enterprises, and other kinds of supervised work experience. The SAE programs conducted by students provide opportunities to apply knowledge and skills learned in the classroom and laboratories to production agriculture and/or agribusiness occupations (Pals & Slocombe, 1989). According to Williams (1979), the Supervised Occupational Experience programs benefit the students not only in the development of knowledge and skills, but also in the development of desirable occupational and educational attitudes.

Home-Based Enterprise

As the name implies, a home-based enterprise refers to those work experience programs that are not school-based, but rather are individually owned and operated from homes.

The entrepreneurship or home-based experience provides students who aspire to be farmers or small business owners with hands-on practical experience in business management (Shea, 1979). Many persons in rural areas find their homes to be the most profitable and logical location for a business, whenever local government zoning regulations permit such a business. Home-based business can involve any of the several arrays of ventures. In most cases, a farmer lives and works in the same location. Sometimes, members of

the farm family establish other types of businesses on the farm. A person who works full-time in an agribusiness may also choose to work at home in a part-time business related (or not related) to agriculture. Some farmers choose to repair agriculture equipment, sell seed and fertilizer, or perform other part-time business activities in addition to working as a full-time farmer (Sponangle & Harmon, 1990).

Sometimes referred to as entrepreneurship, home projects as a means to learn and grow into an occupation have been used widely over the years in vocational agriculture. For decades, agricultural educators have worked with individuals whose desire was to own their own farm, ranch or agribusiness. In most cases, these young students would return directly to the family farm. Those who did not have a farm to return to would go to work for someone else, and those who excelled in school were expected to go to college.

According to Gillispie and Mulcahy (1990), the real force behind a solid entrepreneurship program is occupational experience. They are of the opinion that every student needs to have a solid supervised agricultural experience program, of which ownership-type programs should be considered the "capstone" supervised agricultural experience program.

School-Based Enterprise

School-based enterprises are of many kinds. A particular pattern is one called Rural Entrepreneurship Through Action Learning (REAL). REAL enterprise is an economic education consortium facilitating assistance for young people to research, plan, set up, own, and operate economically viable small businesses. The primary goals are:

> "(a) to help rural schools become effective business incubators and community-developed organizations; (b) to help participants develop economic literacy, entrepreneurship skills, and business management skills; (c) to help expand the local employment base by creating businesses that benefit the rural economy; and (d) to help rural students develop greater self-esteem and complete their schooling, and become productive citizens" (Delargy, pp. 3-7, 1985).

Related Studies on Students' Attitudes

A survey of published books and monographs, as well as articles on attitudes of students who work part time during the school year revealed that the traditional approach of investigating this method has been to explore the differences in the perceived effects of different dimensions of part-time employment on students. Thus, previous research on the issue has focused on such perspectives as

school supervised and nonsupervised work experience; student owned enterprises and home- or family-based enterprises, working while in high school, and others. In this section, the existing literature on the educational value of such programs and the attitude of high school students will be examined.

The study by McMillion et al. (1990) utilized samples of students from a school for automotive repair in a major east coast city, a second school located in a rapidly growing suburban school district in the Midwest, and a third comprehensive school located in a rural part of a southern state. The data were collected in group situations at the schools with one of the investigators administering the paper and pencil questionnaires in most locations. Student perceptions of the value of the school-based and home-based enterprises for obtaining work experience were measured as they related to various factors, including: relatedness, work autonomy, kind and amount of skills learned, effect on grades, and the supervision provided.

The findings in this study indicated that school enterprises were more related to the curriculum and to career goals than were home enterprises. School enterprises provided a greater variety of skills in fewer hours of work with closer supervision. Also, as in the previous study, home enterprises were perceived as providing increased use

of problem solving and decision making, and requiring more math skills, money management and responsibility.

Stern (1984) compared the experiences of high school students employed in out-of-school jobs with those employed in certain school-based (restaurant) jobs. He found that the student-run (school-based) restaurants gave young people "more opportunity to work in teams, to learn skills they think will be valuable in future jobs, and to experience work that is more intrinsically motivating" (p. 422).

Several studies have focused on the perceived educational value to students in the cases where work was and was not supervised by the school. Steinberg (1982) analyzed a nonschool supervised situation and concluded that there were low rates of initiative taken by student workers in such cases, and that little formal instruction occurred between work supervisors and/or co-workers. He concluded that for this type of work, "the substitution of work experience for schooling decreased the likelihood that they (youth) will succeed in the labor force" (p. 202).

An analysis by Greenberger and Steinberg (1986) of an Orange County, California sample of fast food workers found that working is correlated with, and may cause, a range of dysfunctional, unethical, or self-destructive behaviors and attitudes among young high school students. This finding parallels a later study by Steinberg (1989) using a larger,

more diverse sample of students in a variety of jobs. Stone et al. (1990) examined the perceptions of adolescents in school supervised and nonschool supervised situations. They concluded that students employed in school supervised work-experience showed more maturity, saw a closer relationship between school and work, made more use of academic skills, and indicated that they learned from their work.

The perceptions of students about supervised work programs have also received attention in agricultural education research. Williams (1979) observed that supervised occupational experience (SOE) programs were beneficial to students in the development of knowledge and skills, and in the development of desirable occupational and educational attitudes. Similarly, Kim and Wright (1989) noted that vocational agriculture students most often listed "responsibility" as the major benefit derived from the SOE program. Pals and Slocombe (1989) studied 387 students who completed the vocational agriculture program between 1981 and 1985 and 365 students who were seniors in 1986. These students were asked to rate the benefits of the SOE programs. The five greatest benefits mentioned by the students were: (a) opportunity to learn on own, (b) promote acceptance of responsibility, (c) development of independence, (d) pride in ownership, and (e) appreciation of work. The authors concluded that "SOE programs are

useful not only in developing knowledge and skills from information learned in the classroom, but that they can affect the behavior of students" (p. 46).

The preceding review of existing studies has presented an array of studies pertaining to the perceptions of students toward part-time work programs. The more important efforts have been discussed in some detail, and each of these studies has in some part provided the basic structure for this discussion. However, some shortcomings in this research provides a rationale for the present study. Due to inconsistencies in the findings and conclusions of most of the previous studies, many researchers have pointed out the need for more studies to investigate the behavior and attitudes of students toward part-time work experiences.

Definitions and Description of Work Situations, Work Attitudes, and Work Behaviors

According to Duncan (1972), one of the shortcomings of much of the theoretical and empirical research has been the failure to clearly conceptualize the elements comprising it. A major advantage of defining and describing the work experience elements used in this study is to provide a clearer understanding of the variables, to aid in their operationalization, and to establish boundaries for the research.

Nine work condition variables were explored in this study to determine their relationship to work attitudes of agricultural education students. Each of these variables is discussed in the following subsections, and presented as operationalized in this study in chapter 3.

Nature of Job

Greenberger and Steinberg (1986) conceptualized the nature of jobs based on three contexts: educational, economic, and social. According to the authors a description of the nature of jobs is based on: (a) whether the work experience impacts skills or knowledge valuable for adult work life, (b) whether the work is performed in order to fill a financial need of the youngster's family or the community or out of a sense of the youngster's future financial needs, and (c) whether the work brings young people into contact with adults who have a stake in preparing them for adulthood.

In recent years, the conditions surrounding work for American adolescents have become increasingly negative on each of these three dimensions. Today, it is argued that working is more likely to interfere with than enhance schooling; promote pseudo-maturity rather than maturity; be associated in certain circumstance with higher, not lower, rates of delinquency and drug and alcohol use; and foster cynical rather than respectful attitudes toward work. These

negative influences can be explained by deficiencies in the work experiences typically available to youngsters.

In this study, the nature of job desired by agricultural education students is operationalized as how interesting the job is, opportunity for advancement and promotion, opportunity to help others, importance of wages, opportunity for creativity, longevity of skills, friendly work atmosphere, societal benefits of job, extent of participation in decision making, availability of leisure time, amount of supervision, opportunity to develop skills, extent to which one can be one's self, extent of job respect, interaction with coworkers, extent of job pace, and extent of job challenge.

Use of Academic Skills

Conceptually, academic skills are defined as the amount of time youngsters spend reading, writing, performing arithmetic computations, or creating new information or materials for use in the work site. Previous research (Peterson, 1982) noted that these skills are important for success, particularly in entry-level, unskilled or junior professional jobs. The higher the academic skills the more positive the students' attitudes toward work. On the other hand, when the academic skills of students are not required in their jobs, cynicism develops (Stone et al., 1990).

For this study, academic skills of agricultural education students are operationalized as the amount of reading required by the job, the amount of math required by the job, and the amount of writing required by the job.

Supervision

Supervision is conceptualized as managing inexperienced workers and directing their work (Greenberger & Steinberg, 1986). There is evidence that the nature of supervision affects workers attitudes. For example, McMillion, Stone, Hopkins, and Stern (1992) found that authoritarian supervision was associated with more cynicism about work while supervision with discussion was associated with less cynicism. Authoritarian supervision, however, was associated with more responsible attitudes about work. In this study, supervision is operationalized as the closeness of supervision, approach of supervision, extent of freedom to obey the supervisor, need for supervision, willingness to be supervised, and the fairness of supervision.

The Relationship of Work and School

The relationship of work and school is conceptualized as one's attitude regarding labor and educational forces. Research shows that long work hours during the school year diminishes the investment in schooling and lowers school performance, increases psychological distress and somatic complaints, increases the rates of drug and alcohol use, and

delinquency, and results in greater autonomy from parental control (Steinberg & Dornbusch, 1990). Often these situations result in negative behavior towards employment.

Other studies concluded that work benefits students when it is school related, and that school-directed work experience programs have positive effects (McMillion et al., 1990). In this study the relationship of work and school for agricultural education students is operationalized as importance of school in job performance, effect of job on homework, effect of job on career choice, provision of information on coursework, improved class participation, hindrance to school attendance, better understanding of importance of education, enhancement of subject preference, effect on class preparation, effect on energy to do school work, interference with classroom concentration, realization of the importance of performance, and tendency to quit school.

Learning on the Job

Learning on the job is defined as those skills gained through actual experience which may be applicable to future work and career choices. Over the last 100 years the educational value of early work experience has diminished steadily. Unlike in the past, adolescents' work experience today has become virtually irrelevant to future work roles. In most cases, it provides few opportunities for young

people to practice or acquire work habits that will serve them well in the future. This has negatively affected the attitudes of adolescents toward jobs (Greenberger & Steinberg, 1986).

In this study, learning on the job by agricultural education students is operationalized as developing abilities to follow directions, get along with people, be on time, take responsibility for the work, manage money, strive to do well, set priorities, communicate with others, learn how to learn, improve basic skills (math, reading, writing), and make decisions.

Work Variety

Work variety is conceptually defined as the extent of involvement by the adolescent in the workplace. Work variety has been shown to be related to work attitudes. For example, McMillion et al. (1992) found that students having repetitive work related activities were more cynical about their work. Those who work in a variety of ways and whose work is not monotonous were more responsible and less materialistically motivated. In this study, work variety is operationalized as job done same way again and again, same kind of work done in a variety of ways, and a number of different kinds of things done on the job.

Gender

Conceptually, gender in the work environment relates to the extent to which men and women look for different things in their jobs. Research shows that gender differences are evident in intrinsic job orientations (deVaus & McAllister, 1991) or in job situations that allow one to use initiative in a job and to gain achievement, responsibility, challenge, and interest. Evidently, women tend to place a lower value than men on extrinsic work characteristics. Such characteristics affect the attitudes of these individuals toward work (deVaus & McAllister, 1991). In this study, gender of agricultural education students is operationalized as male and female.

Work Attitudes

Conceptually, work attitude is defined as a basic predisposition or a basic way in which an individual is ready to experience a situation at a work site. It is also the tendency to react specifically toward an object, situations, or value. Work attitudes usually are accompanied by feelings and emotions (Witty, 1981).

Raizen (1989) indicated that poor work attitudes by adolescents who are entering the work force are a greater problem for employers than their lack of job skills. Bracey (1991) reported "80% of American employers express concern pertaining to 'skills' of young workers, but not about the

academic skills they acquired from school" (p. 115). They complain that adolescents lack a proper work ethic. A 1989 study in Michigan cited in Raizen (1989) regarding preferences of employees by employers showed their highest priority to be personal management skills in the following order: (a) self-control, honesty and integrity, pride in one's own work, and respect for others; (b) priority to academic skills; and (c) priority to teamwork skills. Buck and Barrick (1987) found basic categories of work desired by employers to include honesty, to include good attitudes, to include self-esteem, to include positive self-image, to include personal and career goals, to work well with peers, to accept assignments pleasantly, to accept all types of people, to respect the rights and property of other people, to complete work on time, to perform extra work and overtime, to exhibit loyalty to the organization and its employees, and to show concern for their future career with the organization.

In looking at yet another aspect of work attitude, it is known that vocational education in secondary schools is primarily directed toward preparing adolescents for work in each domain of learning including the affective domain. The concept of changing attitudes is commonly believed to be more difficult than teaching knowledge and skills. Work attitudes are influenced by forces outside school such as

family characteristics, community social groups, and the kind of work experienced with other adolescents.

Another study (Kim & Wright, 1989) looked at general education requirements in vocational education programs. From a sample of 2,330 employees and 306 employers they found that: (a) responses from completers seemed to validate the importance of good work habits, work attitudes and other positive work behaviors; (b) competencies in the areas of interpersonal skills, communication skills, and problem-solving were considered important; and (c) perceptions were very similar, regardless of whether the respondents held degrees or certificates.

According to Stone et al. (1990) properly administered work experience should equip the students with self-management, autonomy, initiative, and the ability to participate in the well-being of society.

Following Kim and Wright (1989), The Hawaii State Board of Vocational Education (1989) completed a study regarding an inventory of skills, knowledge, and attitudes necessary for a career in diversified agriculture. The Board found that attitudes were rated highest by those surveyed. Attitudes were followed by general management skills, and knowledge in the fields of animal husbandry, agricultural construction, crops/general agriculture, plant propagation, horticulture/general, horticulture/flowers and aquaculture.

In this study, work attitudes of agricultural education students were operationalized with one question comprising 35 statements. These statements required the respondents to choose from a four-choice scale. Choices were 1 for "strongly disagree," 2 for "disagree," 3 for "agree" or 4 for "strongly agree." For example, participants were required to respond to statements such as not wanting to do work perfectly if it is difficult, desiring work one can forget after the day is over, often forgetting what one is supposed to do, feeling that company does not care for employees, being responsible at work, and hard work has no merit. The statements were whether work provides self-respect, whether a worker who keeps busy in the job passes time more quickly than the loafing employee who does a sloppy job, whether promotion to a higher level job means more worries and should be avoided, whether a person who holds down a good job is respected in the neighborhood, whether a good job means a good paycheck, whether employees should be satisfied with their best job performance possible, and whether a person should choose a job over another because it offers higher wages.

Work Behavior

In this study the work behavior of agricultural education students is operationalized as whether employees practiced honesty in their workplace. For example, had the

employee called in "sick" with a phony excuse; or put down more hours on the time card than actually worked; come to work high on drugs or alcohol; short-changed a customer; lied about age or something else to keep the job; and taken money from the workplace or given goods or services free or for less money to friends or visitors. Also included was whether employees had purposely damaged or destroyed property that belonged to the employer or a co-worker in order to avoid work.

Chapter Summary

Chapter 2 contains a review of related literature concerned with agricultural education adolescent students work attitudes and behavior regarding part-time employment during high school. The related literature review provided contradictory information pertaining to part-time employment during high school. The chapter explored the benefits, drawbacks, and negative attitudes and behaviors associated with part-time employment for students, including agricultural education students. Several part-time employment options (cooperative, home and school-based enterprise) were discussed and reported. In addition, the chapter provided definitions and descriptions of work situational characteristics. This chapter also presented a clearer understanding of part-time employment in regards to attitudes and behaviors of adolescent work experience

programs. Finally, the dependent and independent variables operationalization in this study were discussed and reported.

Chapter 3

RESEARCH METHODOLOGY

This chapter describes the research design, the population and sample, instrumentation, data collection procedures, and data analysis.

Research Design

The review of related literature illustrated that the majority of research related to adolescents' work attitudes has been directed toward exploring the impact of such programs on students' academic achievement, and work orientation. Most of the findings have shed some light on the attitudes of teenagers toward employment while in school. However, some of the findings are conflicting and suggest the need for further study.

There is also a need to develop baseline information regarding work attitudes and work behaviors among the agricultural education student population. Specifically, this study was designed to explore work attitudes and work behaviors of agricultural education students in three selected counties in the state of Virginia. The study was designed to answer the following questions:

Research Question 1: What is the relationship of work attitudes of agricultural education students in regards to gender, use of academic skills (requires reading, requires mathematics, and requires writing), supervision, work

variety, nature of job, relationship of work and school, and learning on the job?

Research Question 2: What are the best predictors of work attitudes of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Research Question 3: What is the relationship of work behavior of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Research Question 4: What are the best predictors of work behavior of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

A descriptive research method was utilized. Descriptive research techniques seek to find answers to questions through the analysis of variable relationships. It is also concerned with summarizing and describing numerical data. These methods can either be graphical or involve computational analysis (Kazmier, 1976, p. 3).

Survey methods were used to collect data involving agricultural education students in selected counties in Virginia. The survey method was used in this study because it enabled the researcher to acquire the necessary information (at an acceptable degree of accuracy) with a minimum of inconvenience to the participants. A survey may be conducted in several different ways: (a) personal interview, (b) mailed questionnaire, (c) panel discussion, (d) telephone, and (e) controlled observation (Kerlinger, 1973, p. 140). A variation of the mailed questionnaire method seemed most appropriate to obtain suitable data for this research. The questionnaires were administered to agricultural education students by the researcher in at least one classroom group per school as an example for the teacher to follow with remaining groups. Some questionnaires administered by teachers were mailed back with usable data.

Population and Sample

The population for this study consisted of sophomore, junior, and senior agricultural education students in Augusta, Rockingham and Shenandoah counties in the state of Virginia. The sample included 477 sophomore, junior, and senior agricultural education students from three rural counties of Virginia. This sample was 96% from the total population of 497.

Three reasons justify the selection of these counties for this study. First, they included three of the top four counties in farm income (Virginia Department of Agriculture and Consumer Service, 1990) along with related agricultural service occupations. Second, school agricultural programs and practices concerning Supervised Agricultural Experience Programs were recognized as some of the best in Virginia. Third, the agricultural education programs in the schools had sufficient numbers of students in each of the work experience arrangements.

Sampling Procedure

According to Van Dalen (1979), sampling does not consist of collecting data casually from any conveniently located unit. To obtain a representative sample, one systematically selects each unit in a specific way under controlled conditions. Four steps suggested in this process are (a) specify the sampling unit, (b) specify the sampling frame, (c) specify the sample size, and (d) specify the sample plan.

Sampling Unit

The sampling unit for this study was agricultural education students in the sophomore, junior, and senior grades in high schools in three counties in the state of Virginia. These counties were Augusta, Rockingham, and

Shenandoah. The sample consisted of those students who had participated in supervised agricultural experience (SAE).

Sampling Frame

In order not to deviate from the purpose of this research, some guidelines were used to select schools for inclusion in the study:

1. A school had to have at least 8 agriculture students in cooperative education in the sophomore, junior and senior grades, and
2. The teachers must be knowledgeable of cooperative education programs.

All high schools in the three counties met the selection guidelines. The following 11 high schools were used as sites for the study.

Augusta County:	Buffalo Gap High School
	Fort Defiance High School
	Riverheads High School
	Wilson Memorial High School
	Stuarts Draft High School
Rockingham County:	Broadway High School
	Spotswood High School
	Turner Ashby High School
Shenandoah County:	Central High School
	Stonewall Jackson High School
	Strasburg High School

Determining the Sample Size

According to Churchill (1976), the question of a sample size is a complex issue since it depends on, among other things, the type of sample, the statistic in question, the homogeneity of the population, and the time, money and personnel available for the study. Based on these, he concluded that no specific rules on how to obtain an adequate sample can be formulated, because each situation presents its own problem. For this study a total sample of 477 agricultural students in the 11 high schools was utilized. This sample was 96% of the population. A random sample of 12-35 students was obtained in each school which also had 8-15 cooperative education students.

Kerlinger (1973) recommended as large a sample size as possible be used in order to effectively utilize the principle of randomization. Secondly, Borg and Gall (1971, p. 123) indicated that the larger the sample, the greater the probability that the mean and the standard deviation will be representative of the population mean and the standard deviation. Finally, the larger the sample, the better for the researcher to obtain results which actually represent the population.

Sampling Plan

According to Tull and Hawkins (1976), the sampling plan involves the specification of how each of the decisions made thus far are to be implemented. Once the sample of students had been obtained, the following procedures were followed:

1. Letters were written to agricultural education teachers at each school who, with the researcher, administered the questionnaires to the students in 11 selected schools. The letters were written in August 1991 asking for the cooperation and willingness to participate in the study.
2. The questionnaires were carried to the identified agricultural education teachers in each of the chosen schools near the end of the 1991-92 school year. The teacher(s) and the author sampled the 10th, 11th and 12th grade students. Random samples of students were drawn in cases where more than 25 students fell in any one category at a given school. Some important considerations for procedures relative to the directions were:
   a. Students were told that they were part of a study pertaining to school and work.
   b. Students were told that the form they were asked to complete was a survey, not a test.

c. The students were told that they should give serious attention in answering questions about themselves.

d. The participants were told not to put their names on forms and a space was provided for each pupil to write an identification number. The students were told that people they know would not see the forms and no identifiable individual information would be given to anyone.

3. Completed questionnaires not administered by the researcher were returned to the researcher.

Instrumentation for the Study

The data for this study were collected using questions from a questionnaire developed for a National Center for Research in Vocational Education (NCRVE) project by Stern, Stone, Hopkins and McMillion (1990). Some of the questions they used were taken verbatim from the Monitoring the Future study (Bachman, Johnston, & O'Malley, 1984). Others were taken from one of the questionnaires developed by Greenberger and Steinberg (1986) and a survey directed by Mortimer and Lorence (1979a). The NCRVE baseline student questionnaire contained seven sets of items: (a) a cover sheet for information to be used for contacting the student in the future; (b) background characteristics and attitudes

about self; (c) questions about in-school activities, behaviors and attitudes toward school; (d) previous work history; (e) an extensive set of questions about characteristics of their current job, whether school supervised or not; (f) orientation toward future work; and (g) attitudes and opinions about work in general. For this study, items b, c, e, f, and g were modified to include language peculiar to supervised work experience for agriculture students.

Description of Instrument

The questionnaire developed for this study was composed of three major sections. The first section on demographics, included questions that allowed the researcher to identify family size, parental occupations, age of the respondents, parent educational level, and parents' income. None of these demographic variables except gender was included in this research for analysis purposes. The excluded variables were used for identification of the respondents' characteristics and to assist in explaining the study results. The second section of the questionnaire asked the students questions about nature of jobs, use of academic skills, work variety, supervision, relationship of work and school, and learning on the job. Questions in the third section asked students to react to work attitude statements and work behavior statements.

Pilot Study

Prior to conducting the main research study, a pilot study was conducted at Auburn High School, Montgomery County, Virginia. The primary objective for conducting the pilot study was to assist the researcher in determining appropriate items to include in the questionnaire which was designed to collect personal information, family information, and attitude and behavior variables related to the work experience of agricultural education students in Virginia. The pilot study also provided the researcher an opportunity to review and revise procedures to be utilized in collecting the data for the research study.

Measurement

In order to evaluate the research questions stated in this study, it was necessary to provide a precise description of the concepts being measured. This allowed for the differentation of the concept under study from similar concepts. It was also necessary to develop an operational definition. In this study the independent variables included nature of job, academic skills (reading, writing and math), supervision, work variety, relationship of work and school, learning on the job, and gender. The dependent variables were determined by factor loadings of work attitude and work behavior statements. A conceptual definition, and the nature in which the variables were

operationalized in this study follow, beginning with the independent variables.

These independent variables were operationalized in Table 1 for work experience of agriculture students in Virginia (see appendix A for a copy of the questionnaire).

Nature of Job

Nature of job was operationalized with one question comprising 18 statements, 3a through 3r (see Table 1). These statements required the respondents to circle those choices that most appropriately reflected their perceptions of the nature of job on four-choice scales, with 1 as "not important," 2 "a little important," 3 "pretty important," and 4 "very important." For example, the first question asked "How important is seeking a job that is interesting to do?" The respondents had four choices to select from. Another question asked "How important is seeking a job that provides a chance to be creative?," followed by four choices from which to select.

The Cronbach's alpha coefficient of reliability was used for the 18 statements.

Use of Academic Skills

Academic skills were operationalized with three questions comprising three statements. Students were asked to respond to these statements by circling 1 "Yes" or 2 "No"

Table 1
Operationalization of Independent Variables on Work Experience of Agriculture Students in Virginia

Independent Variable	Measurement	Question/Item Number in Questionnaire
Gender		1
Nature of job desired	How interesting the job?	3a
	Opportunity for advancement and promotion	3b
	Opportunity to help others	3c
	Importance of wages	3d
	Opportunity for creativity	3e
	Longevity of skills	3f
	Friendly work atmosphere	3g
	Job uses individual skills and abilities	3h
	Societal benefits of job	3i
	Extent of participation in decision making	3j
	Availability of leisure time	3k
	Amount of supervision	3l
	Opportunity to develop skills	3m
	Can be myself	3n
	Extent of job respect	3o
	Interaction with co-workers	3p
	Extent of job pace	3q
	Extent of job challenge	3r
Use of academic skills	Amount of reading required by the job	4
	Amount of math required by the job	5
	Amount of writing required by the job	6
Super-vision	When your supervisor wants you to do something, what does he/she do? (circle your answer) 1. Usually just tells me what to do 2. Usually discusses it with me 3. Half the time tells me what to do, half the time discusses the work with me	20b

(table continues)

Independent Variables	Measurement	Question/Item Number in Questionnaire
The relationship of work and school	Importance of school in job performance	28a
	Effect of job on homework	28b
	Effect of job on career choice	28c
	Provision of information on coursework	28d
	Improved class participation	28e
	Hindrance on school attendance	28f
	Better understanding of importance of education	28g
	Enhancement of subject preference	28h
	Effect on class preparation	28i
	Effect on energy to do school work	28j
	Interference with classroom concentration	28k
	Realization of the importance of performance	28l
	The tendency to quit school	28m
Learning on the job	Developing abilities	31
	Follow directions	31a
	Get along with people	31b
	Be on time	31c
	Take responsibility for your work	31d
	Manage your money	31e
	Strive to do well	31f
	Set priorities	31g
	Communicate with others	31h
	Learn how to learn	31i
	Improve in basic skills (math, reading, writing)	31j
	Make decisions	31k
Work variety	Work involve doing	17
	Job same way again and again	17a
	The same kind of thing in a number of different ways	17b
	A number of different kinds of things	17c

to indicate whether they read or write or do math on the job (see Table 1).

Supervision

Supervision was operationalized with one question comprising three statements. These statements asked the respondents to circle one answer pertaining to supervision at the work site (see Table 1).

The Relationship of Work and School

The relationship of work and school was operationalized with one question comprising 13 statements (28a through 28m; see Table 1). Respondents were required to circle those choices that most appropriately reflected their perceptions of the relationship of work and school on four-choice scales, ranging from strongly disagree (1) to strongly agree (4). The Cronbach's alpha coefficient of reliability was utilized for the multiple statements.

Learning on the Job

Learning on the job was operationalized with one question consisting of 11 statements, a through k (see Table 1). These statements asked respondents to choose from a four-choice scale for which 1 indicated "not at all true," 2 "a little true, 3 "somewhat true," and 4 "very true."

Cronbach's alpha coefficient of reliability was used for the multiple statements.

Work Variety

Work variety was operationalized with one question consisting of three statements. These statements asked the respondents to circle one answer pertaining to performance at the work site (see Table 1).

Gender

The question required respondents to either circle male or female (see Table 1).

Work Attitudes

Work attitudes were operationalized with one question comprising 35 statements, 21a through 21r (see Table 2; see Appendix A for a copy of the questionnaire). These statements required the respondents to choose from a four-choice scale. Choices were 1 for "strongly disagree," 2 for "disagree," 3 for "agree," or 4 for "strongly agree." Cronbach's alpha coefficient of reliability was utilized for the multiple statements.

Factor analysis loadings were utilized to determine the dependent variables for work attitudes in this study (see Factor Analysis in data analysis section).

Work Behavior

Work behavior was operationalized with one question comprising 9 statements, 23a through 23i (see Table 2; see Appendix A for a copy of the questionnaire). These statements asked the respondents to choose from a four-

Table 2
Operationalization of Work Attitudes Measurement Scale of Agriculture Students in Virginia

Dependent Variable	Measurement Scale	Question/Item Number in Questionnaire
Work attitudes	Job doesn't have to be perfect if hard	21a
	Can forget at end of day	21b
	Often forget things to do	21c
	Future depends on others	21d
	No company cares	21e
	Want to do best	21f
	Employees call in sick	21g
	Hard work doesn't get it	21h
	Most stuck in dead jobs	21i
	Hard to stick to if long job	21j
	Work is making a living	21k
	People who take work home	21l
	Feeling of self-respect	21m
	Give up when things go wrong	21n
	Go through life without working	21o
	Work only as hard as have to	21p
	Very central part of my life	21q
	Responsible to do decent job	22a
	Should work a little slower	22b
	Best job is do nothing all day	22c
	Sense of pride in work	22d
	Day passes quickly if busy	22e
	Feel ashamed of sloppy work	22f
	Friends would not think much of me	22g
	Should not push for promotion	22h
	Better not concerned with promotion	22i
	Promotion means more worries	22j
	Most respected person	22k
	Worthy of praise from friends	22l
	Good job mean same as good paycheck	22m
	Should work with idea of bettering self	22n
	Nothing more satisfying than doing best	22o
	Should choose job that pays the most	22p
	Should take job which offers overtime	22q
	Choose job because of higher wages	22r
Work behaviors	Employees called in "sick" or used phony excuse	23a
	Put more hours on time card than work	23b
	Come to work "high" on drugs or alcohol	23c
	Purposely short-changed a customer	23d
	Lied to get or keep a job	23e
	Taken money from work place	23f
	Given goods or services away free	23g
	Taken things from work place	23h
	Purposely damaged property or equipment	23i

choice scale. For example, students were required to respond to the question "have you ever called in 'sick' or used a phony excuse when you didn't want to go to work?" by circling 1 for "never," 2 for "seldom (1 or 2 times)," 3 for "occasionally (3-5 times)," and 4 for frequently (5+ times)."

Cronbach's alpha coefficient of reliability was used for the multiple statements. Factor analysis loadings were utilized to determined the dependent variable for this study (see Factor Analysis in data analysis section).

Validity

Content validity focuses on the adequacy with which the domain of the characteristic is captured by the measure. In other words, it deals with the "representativeness of sampling adequacy of the content, the substance, the matter of . . . a measuring instrument" (Kerlinger, 1970, p. 229). Determination of content validity is partly judgmental, and requires the researcher to conceptually define the domain of the characteristics, by specifying what the variables are and what they are not (Churchill, 1976, p. 248).

For this study, all the stated research questions relied on the theoretical framework developed at the National Center for Research in Vocational Education (NCRVE) project by Stern et al. (1990). Some of the questions they used were taken verbatim from the Monitoring the Future

study (Bachman et al., 1984), the questionnaires developed by Greenberger and Steinberg (1986), and a survey directed by Mortimer and Lorence (1979a).

Reliability

Several methods exist for ascertaining the reliability of a questionnaire. Among these are test-retest, parallel-forms, split-half, and rational equivalence (Van Dalen, 1979, p. 138). A major alternative to these approaches specified above is to explore the internal consistency of the measures. The most popular method of evaluating this is through the use of Cronbach's alpha, a generalization of a coefficient introduced by Kuder and Richardson to estimate the reliability of scales composed of scored items (Carmines & Zeller, 1979, pp. 43-51). A Cronbach's alpha reliability coefficient was utilized on the multiple statements for the independent and dependent variables in this study. These independent and dependent variables were nature of job, relationship of work and school, learning on the job, work attitudes and work behaviors.

These variables are displayed in Table 3 for work experience programs by agricultural education students in Virginia. The work experience program pilot test was conducted outside the area selected for the actual study. The reliability coefficients for the pilot study measures were .87, .81, .92, .94 and .93. The range found on these

Table 3
Internal Consistency of Variables Having Multiple Statements for Agriculture Education Students in Virginia Pilot Test

Variables	Coefficient of Reliability
Independent Variables	
Nature of Job Deals with 18 statements that ask respondents how important are such things as advancement, promotion, creativity, etc. It asks such questions as: "A job that gives you an opportunity to be helpful to others is: not important, a little important, pretty important, or very important?" etc.	.87
Relationship of Work & School Deals with 13 statements that ask respondents how much they agree or disagree with statements such as "My job has influenced my career choice." "Because of my job, I come to school unprepared."	.81
Learning on the Job Deals with 11 statements that ask respondents how much their job has helped to develop such skills as: Follow-directions; get along with people; be on time, take responsibility for their work, etc.	.92
Dependent Variables	
Work Attitudes Deals with 35 statements that ask how strongly they agree or disagree to statements such as: "Very often I forget work I am supposed to do." Or "Workers are entitled to call in sick when they don't feel like working." It asks whether the respondents agree or disagree with: "A person should feel a sense of pride in his/her work."	.94
Work Behaviors Deals with 9 statements that ask respondents how often they've called in "sick," come in "high," short-changed a customer, or taken money from the place they work. It asks them whether they have: never, seldom, occasionally or frequently done these things.	.93

measures indicated a moderate amount of internal consistency. In other words, the instrument always measures the same score or number when the true value is the same.

Analysis of the Data

The study data were analyzed in two stages. In the first stage the dependent variables of work attitudes and work behaviors were determined by factor analysis.

Factor analysis is a multivariate statistical technique that is concerned with identification of structure within a set of observed variables (Hair, Anderson, Tatham, & Grablowsky, 1979, pp. 218-219). This technique generally finds a way for condensing (summarizing) the information contained in a number of original variables into a smaller set of new composite dimensions (factors) with a minimum loss of information. This method largely depends on factor loadings to identify variables for either regression, correlation or discriminant analysis. The varimax rotation procedure was performed to obtain more clearly defined groups of variables. The magnitude of association between the variable and the factor is indicated by the size of the loadings (Harman, 1967). The factor loadings show the correlation between a variable and a factor.

Hair et al. (1979) pointed out that a $\pm$ .30 correlation is considered significant, a loading of $\pm$ .40 more significant and if loadings are $\pm$ .50 or greater they are

considered to be very significant. This level of significance is an arbitrary rule of thumb, and a lower criterion could be selected.

For the purpose of this investigation, only those variables with factor loadings greater than $\pm$ .40 level were considered to be significant in defining a factor. This conservative level was chosen to provide a greater assurance that the factors are genuine.

In the second stage of the analysis a multiple regression was employed to examine the relationship between criterion variables (work attitudes and work behaviors) and predictor variables (nature of job, math, reading, writing, supervision, work variety, relationship of school and work, learning on the job, and gender). Multiple regression analysis is a multivariate statistical technique that does model fitting, hypotheses testing and estimation of any model that has metric variables as its major components (Hair et al., 1979). It is particularly useful in models that have a single criterion and multiple predictors.

The SPSS-X Advance Statistics Guide Subprogram Regression was used to determine the amount of variance in the criterion variable that was explained by each independent variable, the total amount of variance explained by all predictor variables, and the proportion of variance explained by the cynicism factor score, the intrinsic

motivation factor score, and the work behavior factor score. A stepwise regression methodology was used to determine the proportion of variance in the criterion variable that was explained by the predictor variables when all predictor variables were considered jointly.

Norusis (1988, p. 9) outlined the three most prominent uses of multiple linear regression analysis: (a) to develop an equation that summarizes the relationship between a dependent variable and a set of independent variables, (b) to identify the subset of independent variables that are most useful for predicting the dependent variable, and (c) to predict values for a dependent variable from the values of the independent variables. The categorical variables were dummy coded. This method generates a number of vectors such that, in any given vector, membership in a given group or category is assigned 1, while nonmembership in a given group or category is assigned 0. These dummy coded variables are essentially independent variables used to account for the effect that different levels of a variable produce upon a dependent variable (Hair et al., 1979).

The multiple regression model is of the following form:

$$Yij = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8 + B_9X_9 + Eij$$

Description

Yij = dependent variable

B_i = parameters estimated

B_0 = Constant (intercept)

Eij = Stochastic disturbance term

Independent Variables

X_1 = Gender

X_2 = Nature of job

X_3 = Math

X_4 = Reading

X_5 = Writing

X_6 = Supervision

X_7 = Work variety

X_8 = Relationship of school and work

X_9 = Learning on the job

Moreover for the analysis, research questions 1 and 3 employed Cohen's correlation coefficients analysis method. This analysis method was used to determine the magnitude of relationship between the dependent or criterion variable and the nine independent variables. Cohen (1977) suggested the following criteria for determining the magnitude of relationships between the dependent variable and independent variables for studies in the behavioral sciences:

Small effect size: $r^2 = .01$ or $r = .10$

Medium effect size: $r^2 = .09$ or $r = .30$

Large effect size: $r^2 = .25$ or $r = .50$ (pp. 79-80)

Data presented in this study which describe the relationship between the dependent variable and an independent variable was interpreted based on Cohen's (1977) suggested effect size. As the rule of thumb the author interpreted the effect size as follows:

Small effect size:	r = .10 to .19
Small to medium effect size:	r = .20 to .29
Medium effect size:	r = .30 to .39
Medium to large effect size:	r = .40 to .49
Large effect size:	r = .50 and above.

The sign (+ or -) indicates the direction of relationship and the coefficient varies from -1 to +1. Plus 1 indicates a perfect positive correlation while a minus 1 indicates a perfect negative relationship, and at 0 there is no relationship.

Chapter Summary

Chapter 3 presented (a) the research design and methodologies, (b) the research questions, (c) the selection of the population and sample, (d) the instrumentation, (e) the data collection procedures, and (f) the data analysis of the study. The chapter also consisted of information pertaining to the following: the operationalization of the dependent variables and independent variables, pilot and actual studies of the instrument reliability, and the multiple regression model utilized in the study.

Chapter 4

PRESENTATION, AND ANALYSIS OF DATA

The research findings are discussed in this chapter. The internal consistency of variables and the description of the sample are presented and discussed. This is followed by a presentation of the results of the factor analysis, zero order correlations, and multiple regression analysis. The first section of this presentation focused on exploring the first and second research questions which concerned work attitude. The results of the work attitude factor analysis, correlations, and multiple regression analysis are presented and discussed with regard to the first and second research questions. The second section of this presentation focused on exploring the third and fourth research questions which concerned work behavior. The results of the work behavior factor analysis, zero order correlations, and multiple regression analysis are presented and discussed with regard to the third and fourth research questions. The chapter ends with the research findings.

Reliability

The actual study included 477 agricultural education students from the selected counties (Augusta, Rockingham and Shenandoah) in Virginia. Table 4 illustrates Cronbach's alpha reliability coefficient results on the multiple statements for the independent and dependent variables in the study. The reliability coefficients for the measure of

Table 4
Internal Consistency of Variables Having Multiple Statements for Agriculture Education Students from Selected Counties in Virginia

Variables	Coefficient of Reliability
Independent Variables	
Nature of Job Deals with 18 statements that ask respondents how important are such things as advancement, promotion, creativity, etc. It asks such questions as: "A job that gives you an opportunity to be helpful to others is: not important, a little important, pretty important, or very important?" etc.	.92
Relationship of Work & School Deals with 13 statements that ask respondents how much they agree or disagree with statements such as "My job has influenced my career choice." "Because of my job, I come to school unprepared."	.85
Learning on the Job Deals with 11 statements that ask respondents how much their job has helped to develop such skills as: Follow-directions; get along with people; be on time, take responsibility for their work, etc.	.95
Dependent Variables	
Work Attitudes Deals with 35 statements that ask how strongly they agree or disagree to statements such as: "Very often I forget work I am supposed to do." Or "Workers are entitled to call in sick when they don't feel like working." It asks whether the respondents agree or disagree with: "A person should feel a sense of pride in his/her work."	.89
Work Behaviors Deals with 9 statements that ask respondents how often they've called in "sick," come in "high," short-changed a customer, or taken money from the place the work. It asks them whether they have: never, seldom, occasionally or frequently done these things.	.94

the actual instrument were .92, .85, .95, .89 and .94. These reliability coefficients were moderately higher than the pilot test reliability coefficients.

Description of the Sample

The description of the study sample is presented in Tables 5 and 6. Table 5 illustrates the frequency and percentage distribution of the participants from each of the three counties (Augusta, Rockingham, and Shenandoah). A total of 477 agricultural education students participated in the research representing these counties in Virginia. Augusta County had the most students in the sample with 182, Rockingham had 155, and Shenandoah had 140 participants in this research.

Table 6 illustrates the frequency and percentage distribution for participants from each of the 11 high schools which offered agricultural education programs in the selected three counties. Turner Ashby High School had the largest sample size, 66 or 13.8% of the participants while Wilson Memorial had the smallest, with 12 or 2.5% of participants.

Description of Sample by Independent Variables

The responses of participants to each of the independent variables for this research are presented in Tables 7 through 15.

Table 5

A Frequency and Percentage Distribution of Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

County	Number of Students	Percent of Students
Augusta	182	38.2
Rockingham	155	32.5
Shenandoah	140	29.4
Total	477	100.1[a]

[a]Percentage exceeds 100 due to rounding

Table 6

A Frequency and Percentage Distribution of Agricultural Education Students from Selected High Schools in Virginia

School	Number of Students	Percent of Students
Buffalo Gap	35	7.3
Fort Defiance	50	10.5
Riverheads	41	8.6
Stuart Draft	44	9.2
Wilson Memorial	12	2.5
Broadway	35	7.3
Turner Ashby	66	13.8
Spotswood	54	11.3
Central	43	9.1
Stonewall Jackson	53	11.1
Strasburg	44	9.2
Total	477	99.9[a]

[a]Percentage does not equal 100 due to rounding

Gender

Table 7 illustrates the gender status of 475 participants in this research. Approximately 88% of the participants were males. Only 12% were females.

Use of Academic Skills

Tables 8, 9, and 10 present the frequency of the use of academic skills of agricultural education students. Table 8 illustrates the frequency for the use of reading skills. Approximately 42% of the respondents indicated that their work required them to read, while 58% did not require reading on the job. Table 9 illustrates that 63% of the respondents utilized mathematical manipulation in their work/project (W/P) programs, while 37% indicated that their W/P did not require such manipulation. Table 10 illustrates that 44% of the participants were involved in W/P programs that required writing skills.

Supervision

Table 11 presents the findings for work supervision (environment) status. A total of 340 agricultural education students participated in this aspect of the research. The supervision of 52% of the respondents was directive, the supervision of 23% involved discussion, and the supervision of 25% was half directive and half involving discussion.

Table 7

A Frequency and Percentage Distribution of Gender for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Gender	Number of Students	Percentage of Students
Male	419	88.2
Female	56	11.8
Total	475	100.0

Note: Nonrespondents = 2

Table 8

A Frequency and Percentage Distribution of Work/Project Required Reading for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Work/Project Required Reading	Number of Students	Percentage of Students
Yes	195	41.8
No	272	58.2
Total	467	100.0

Note: Nonrespondents = 10

Table 9

A Frequency and Percentage Distribution of Math Required by Work/Project for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Work/Project Required Mathematics	Number of Students	Percentage of Students
Yes	294	62.8
No	174	37.2
Total	468	100.0

Note: Nonrespondents = 9

Table 10

A Frequency and Percentage Distribution of Work/Project Required Writing for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties

Work/Project Required Writing	Number of Students	Percentage of Students
Yes	207	43.7
No	267	56.3
Total	474	100.0

Note: Nonrespondents = 3

Table 11

A Frequency and Percentage Distribution of Work/Project Supervision for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Work/Project Required Supervision	Number of Students	Percentage of Students
Supervisor directive	175	51.5
Supervisor discuss duties	79	23.2
Supervisor half time discuss and half time direct	86	25.3
Total	340	100.0

Note: Self-employed (n = 124) and nonrespondents (n = 13)

Work Variety

Table 12 presents the findings for work variety. Approximately 35% of the 461 students who responded performed work functions the same way again and again, 25% did the same kind of things in a variety of ways, and 40% did a number of different kinds of things.

Nature of Job

Table 13 illustrates the percentage and frequency distribution for the importance (nature) of the job. A total of 475 students participated in this aspect of the research. Approximately 37% of the participants considered nature of job very important for seeking part-time employment after school or during weekends. Only 6.5% considered nature of job not important for seeking part-time employment after school or during weekends.

Relationship of Work and School

Table 14 illustrates the percentage and frequency distribution of relationship of work and school. A total of 471 participated in this part of the study. Approximately 55% of the respondents disagreed or strongly disagreed with statements such as "My job has influenced my career choice," and "Because of my job, I come to school unprepared." About 45% agreed or strongly agreed with such statements.

Table 12

A Frequency and Percentage Distribution of Work/Project Required Work Variety for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Work/Project Required Work Variety	Number of Students	Percentage of Students
Same way again and again	160	34.7
Same kind of things in variety of ways	115	24.9
A number of different kinds of things	186	40.4
Total	461	100.0

Note: Nonrespondents = 16

Table 13

A Frequency and Percentage Distribution of Nature of Jobs for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Nature of Job	Number of Students	Percentage of Students
Not important	31	6.5
A little important	96	20.2
Pretty important	172	36.2
Very important	176	37.1
Total	475	100.0

Note: Nonrespondents = 2

Table 14

A Frequency and Percentage Distribution of Relationship of Work and School for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Relationship of Work and School	Number of Students	Percentage of Students
Strongly Disagreed	78	16.6
Disagreed	180	38.2
Agreed	159	33.7
Strongly Agreed	54	11.5
Total	471	100.0

Note: Nonrespondents = 6

Learning on the Job

Table 15 illustrates the percentage and frequency distribution for learning on the job. A total of 467 agricultural education students participated in this part of the study. Approximately 45% of the respondents indicated indicated that their work/project programs developed some skills and abilities.

In order to examine the relationship between dependent variables (work attitude and work behavior), and independent variables (gender, nature of job, use of academic skills -- that their work/project programs developed a great deal of skills and abilities. About 34% of the respondents reading, mathematics and writing -- relationship of work and school, supervision, work variety, and learning on the job), it was necessary to utilize a principal factor analysis with a varimax rotation. The varimax rotation was performed to obtain more clearly defined groups of variables. This rotational method obtains the maximum possible simplification if there are only ones and zeros in a single column (Hair et al. 1979). It searches for a set of factor loadings such that each factor has some loadings close to zero and some loadings close to -1 or +1. The magnitude of association between the variable and the factor is indicated by the size of the loadings.

Table 15

A Frequency and Percentage Distribution of Learning on the Job for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Learning on the Job/Project	Number of Students	Percentage of Students
Did not develop skills and abilities	34	7.3
Develop skills and abilities a little	63	13.5
Develop some skills and abilities	158	33.8
Develop a great deal of skills and abilities	212	45.4
Total	467	100.0

Note: Nonrespondents = 10

As shown in Table 2 and Table 16, the factor analysis generated three factor scores from 35 work attitude measurement scales. These factor scores were named cynicism about work, intrinsic motivation, and extrinsic motivation. Also the factor analysis generated a factor score from 9 work behavior measurement scales which appear in Table 2. The factor score is for work behavior (ethical or honest work behavior).

The factor score for cynicism about work ($\underline{M}$ = 2.181) indicated that nearly all, 475 out of 477 students, disagreed with statements such as: "very often I forget work I am supposed to do," or "workers are entitled to call in sick when they don't feel like working," and "a person should feel a sense of pride in his/her work." The factor score for the intrinsic motivation ($\underline{M}$ = 3.160) indicated that 472 out of 477 students, agreed with statements such as: "very often I forget work I am supposed to do," or "workers are entitled to call in sick when they don't feel like working," "a person should feel a sense of pride in his/her work." The factor score for work behavior ($\underline{M}$ = 1.378) indicates that these agricultural education students either never or seldom called in "sick," came in "high on drugs," "short-changed, or took money from the place of work."

Table 16

Comparison of Number of Respondents, Means, and Standard Deviations for Work Attitude, and Work Behavior (Factor Scores) Dependent Variables

Variable	N	Mean	SD
Cynicism about work	475	2.181	.493
Intrinsic motivation	472	3.160	.501
Extrinsic motivation	468	2.656	.359
Work behavior	474	1.378	.654

Note: Work behavior included in table with work attitude factors.

As noted in Table 16, three work attitude factor scores were generated as the dependent variables (cynicism factor score, intrinsic motivation factor score, and extrinsic motivation factor score) and were used in this study. The work behavior factor is discussed later.

Factor Scores of Work Attitude and Behavior as Related to Demographic and Work or Project Variables

Research Question 1:

What is the relationship of work attitudes of agricultural education students to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Table 17 presents results of the zero order correlation between three dependent variables (work attitude factors scores) and nine independent variables for agricultural education students.

Gender and Work Attitude Factor Score

A total of 475 agricultural education students indicated their gender. Approximately 88% of the respondents were males. Only 12% were females. Gender was coded as zero for female, and one for male. The correlation coefficients were .12 between gender and the cynicism factor score and .15 between gender and the extrinsic motivation

Table 17
Zero Order Correlation Between Three Work Attitude Variables and Nine Independent Variables for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Variables	Factors		
	Cynicism About Work	Intrinsic Motivation About Work	Extrinsic Motivation About Work
DUM1 (Gender)[a] (X_6)	.119**	-.059	.154**
DUM2 (Work Requires Reading)[b] (X_7)	-.137**	.200**	.064
DUM3 (Work Requires Mathematics)[c] (X_8)	-.104*	.202**	-.055
DUM4 (Work Requires Writing)[d] (X_9)	-.138**	.188**	.047
Supervision (X_3)	-.070	.052	-.055
Work Variety (X_2)	-.174**	.102*	-.003
Relationship of Work and School (X_4)	.355**	.022	.388**
Nature of Job (X_1)	.039	.217**	.255**
Learning on the Job (X_5)	-.085	.301**	.199**

* $p<.05$ ** $p<.01$

[a]DUM1, Gender of respondent
[b]DUM2, Do you read as part of your work?
[c]DUM3, Do you use math as part of your work?
[d]DUM4, Do you use writing as part of your work?

factor score, which indicate that the magnitude of the relationship between gender and the cynicism factor score, and gender and the extrinsic motivation factor score were of a small effect size and were statistically significant beyond .05 level.

Work/Project Requires Reading and Work Attitude Factor Scores

A total of 467 subjects responded to this variable in the study. Approximately 42% indicated that their work or project involved reading, while 52% of the respondents indicated that their W/P did not involve looking up unfamiliar words, reading job manuals, and legal documents. In addition, W/P requires reading was dummy coded as zero for "no" and one for "yes." As shown in Table 17, the correlation coefficients were -.14 for the cynicism factor and .20 for the intrinsic motivation factor, which indicate that the magnitude of the relationship between the cynicism factor and W/P involved reading was a negative small effect size and the intrinsic motivation factor and W/P involved reading had small to medium effect size. Both were statistically significant beyond the .05 level.

Work/Project Requires Mathematics and Work Attitude Factor Scores

A total of 468 agricultural education students participated in this aspect of the study. Approximately 63% of the students indicated that their W/P involved

mathematics, while 37% indicated that W/P did not involve use of mathematics. In addition, W/P requires mathematics was dummy coded as zero for "no," and one for "yes." As shown in Table 17, the correlation coefficients were -.10 for the cynicism factor score and .20 for the intrinsic motivation factor score, which indicate that the magnitude of the relationship between W/P involved mathematics and the cynicism factor score and the intrinsic motivation factor score had a negative small effect size and a positive small to medium effect size, respectively. Both were statistically significant beyond the .05 level.

Work/Project Requires Writing and Work Attitude Factor Scores

A total of 474 agricultural education students participated in this part of the study. Approximately 44% of the sample indicated that their W/P required writing, 56% of the respondents indicated that the work/project did not involve writing. Additionally, W/P requires writing was dummy coded as zero for "no," and one for "yes." As shown in Table 17, the correlation coefficients were -.14 for the cynicism factor and .19 for the intrinsic motivation factor. The correlation coefficient for the cynicism factor indicates that the magnitude of relationship between W/P requires writing and cynicism factor score had a negative small effect size and statistically significant beyond the .05 level. The other correlation coefficient indicates that

the magnitude of relationship between W/P requires writing and the intrinsic motivation factor score had a small effect size and was statistically significant beyond the .05 level.

Supervision and Work Attitude Factor Scores

A total of 340 agricultural education students participated in this aspect of the research. The supervision of 52% of the respondents was supervisor directive, the supervision of 23% involved democratic discussion, and the supervision of 25% was half directive and half involving democratic discussion. The mean work attitude factors were determined for three response categories representing supervision. Table 17 presents the correlation coefficients of -.07 for the cynicism factor, .05 for the intrinsic motivation factor, and -.06 for the extrinsic motivation factor. These correlation coefficients were too low to be significant beyond the .05 level.

Work Variety and Work Attitude Factor Scores

A total of 461 agricultural education students participated in this aspect of the research. Approximately 35% used repetition in performing the work functions, 40% did a number of different kinds of things in the work environment, and 25% used the same kind of things in a variety ways. The mean work attitude factors were determined for three response categories representing work variety. As shown in Table 17, the correlation coefficients were -.17 for the cynicism factor score, and .10 for the

intrinsic motivation factor score. These correlation coefficients indicate the magnitude of relationship between the factor scores, and work variety. The cynicism factor score had a negative small effect size, and the intrinsic motivation factor score had a positive small effect size. They were statistically significant at or beyond .05 level.

Relationship of Work and School, and Work Attitude Factor Scores

A total of 471 subjects participated in this aspect of the research. Approximately 34% of the respondents agreed with statements such as "my job has influenced by career choice," and "because of my job, I come to school unprepared." About 38% of the respondents disagreed with such statements. Furthermore, the relationship of work and school was a summative rating scale or Likert-type scale which was obtained by adding selected items that measured the same response scores. The mean work attitude factors were determined for four possible response categories representing relationship of work and school. As shown in Table 17, the correlation coefficients were .36 for the cynicism factor score, and .39 for the extrinsic motivation factor score. These correlation coefficients indicate the magnitude of relationship between work and school, and the work attitude factor scores. Correlations with the two factor scores had medium effect size and were significant beyond the .05 level.

Nature of Job and Work Attitude Factor Scores

A total of 475 agricultural education students participated in this part of the study. Approximately 37% of the respondents indicated that nature of job was very important in seeking a part-time job after school or weekends during the school year. Only 7% indicated that nature of job was not important in seeking a part-time job after school or weekends during the school year. Additionally, nature of job was a summative rating scale or Likert-type scale which was obtained by adding selected items that measured the same response scores. The mean work attitude factors were determined for four possible response categories representing nature of job.

Table 17 illustrates the correlation coefficients between nature of job/project and work attitude factor score. The correlation coefficients were .22 for the intrinsic motivation factor score, and .26 for the extrinsic motivation factor score. These correlation coefficients indicate the magnitude of relationship between nature of job/project and work attitude factor scores. These correlation coefficients had positive small to medium effect size for the intrinsic motivation factor score and the extrinsic motivation factor score. In addition, they were statistically significant beyond the .05 level.

Learning on the Job and Work Attitude Factor Scores

A total of 467 agricultural education students participated in this aspect of the research. Approximately 45% of the respondents indicated that learning on the job/project develops a great deal of skills and abilities. Only 7% indicated that learning on the job/project did not at all facilitate skills and abilities development such as: follow directions, get along with people; be on time; take responsibility for their work, etc. Furthermore, learning on the job/project was a summative rating scale or Likert-type scale which was obtained by adding selected items that measured the same response scores. The mean work attitude factors were determined for four possible response categories representing learning on the job/project.

As shown in Table 17, the correlation coefficients for work attitude factor scores were .30 for the intrinsic motivation factor score, and .20 for the extrinsic motivation factor score. The intrinsic motivation factor score had a medium effect size and the extrinsic motivation factor had a small to medium effect size. Both were statistically significant beyond the .05 level. In addition, as illustrated in Table 17, the zero order correlation coefficients between three work attitude factor scores (cynicism about work, intrinsic motivation and extrinsic motivation) and the nine independent variables also indicated that: the cynicism factor score had less

than small effect size relationship for supervision -.07, nature of job .04, and learning on the job -.09 and were not statistically significant. The intrinsic motivation factor score had less than small effect size relationship for DUM1 (gender) - .06, supervision .05, relationship of work and school .02 and were not statistically significant.
The extrinsic motivation factor score had less than small effect size relationship for DUM2 (work requires reading .06) DUM3 (work requires mathematics -.06), DUM4 (work requires writing .05) supervision -.06, and work variety -.00 and were not statistically significant.

Research Question 2:

What are the best predictors of work attitudes of agricultural education students in regards to gender, use of academic skills (reading, mathematics and writing) supervision, work variety, nature of job, relationship of work and school, and learning on the job?

The second research question was explored using multiple linear regression analysis (MRA) to identify the best predictors among the nine independent variables and the work attitude factor scores (cynicism, intrinsic motivation, and extrinsic motivation).

A stepwise regression model was utilized to determine the proportion of variance in the dependent variable that was explained by the independent variables when all

independent variables were considered jointly (see Table 18). The multiple correlation coefficient for the model ($R = .514$; $F = p<.00$) was significant beyond the .05 level. In other words, there is a statistically significant relationship between the cynicism factor score and the linear combination of the predictor variables in the model. Furthermore, the $R^2(.265)$ of the cynicism factor score means that 26.5% of the variance in the work attitudes factor score and can be attributed to the variance in the linear combination of the predictor variables. Among the nine independent variables, relationship of work and school, work/project requires reading, work variety, learning on the job and nature of job were significantly related to the cynicism work attitude factors beyond the .05 level. Four of the independent variables were not statistically significant. In order to interpret the relationship between the five significant variables and the criterion or cynicism work attitude factor scores, each partial regression coefficient was examined. In general, one unit increase in any of the independent variables results in a change in the criterion variable equal to the size of the partial regression coefficient with other independent variables held constant. In other words, the partial regression coefficient measures the strength of the association between the dependent variable and a single predictor variable when

Table 18

Regression on Work Attitudes (Cynicism Factor Score) on Independent Variables

Variable	Multiple R	R^2	R^2 Change	Partial Regression Coefficient	F
Relationship of Work and School	.413	.170	.170	.476	88.195**
DUM2 (Work requires Reading)[a]	.465	.216	.046	-.181	12.521**
Work Variety	.491	.241	.025	-.161	10.867**
Learning on the Job	.502	.253	.012	-.155	8.042**
Nature of Job	.514	.265	.012	-.122	5.248*
Constant				1.102	

n = 326
*p<.05
**p<.01

[a]DUM2, Do you read as part of your work?

the effects of the other predictor variables in the model are held constant. Consequently, it indicates that a unit increase in any of the independent variables will proportionally change the dependent or criterion variable by the same standardized coefficient for the variable (Hair, et al., 1979).

The relationship of work and school was the predictor variable which explained the largest proportion of variance in the cynicism work attitude factor score. The R^2 value was .170 which indicates that this variable accounted for 17% of the variance in the cynicism work attitude factor score when there were no other variables in the equation. A unit increase in the relationship of work and school is associated with .476 increase in the cynicism factor score and was entered as the first step in the regression model. The relationship of work and school made the largest unique contribution to the explained variance in the cynicism in work attitude factor score. The variable, DUM2 (work requires reading) was entered into the regression model on step two. The change R^2 value was .046 which indicates that this variable accounted for an additional 5% of the explained variance in the cynicism work attitude factor score. Also, a one unit decrease in reading corresponds with a .181 increase in the cynicism work attitude factor score. Work variety was entered into the regression model on the third step. The R^2 change value was .025 which

indicates that this variable accounted for an additional 3% of the explained variance in the work attitudes (cynicism factor score). The partial regression coefficient indicates that one unit decrease in work variety corresponds with a .161 increase in the cynicism work attitude factor score. Learning on the job entered into the regression model on the fourth step. The R^2 change value was .012; therefore, learning on the job was a predictor variable which explained and additional 1% of the variance in work attitudes (cynicism factor score). The partial regression coefficient indicates that a unit decrease in learning on the job corresponds with a .155 increase in the cynicism work attitude factor score. Nature of the job was the last predictor variable which entered into the stepwise regression model. The R^2 change value was .012, which indicates that this variable accounted for an additional 1% of the explained variance in work attitudes (cynicism factor score). The partial regression coefficient indicates that a unit decrease in the nature of job corresponds with a .122 increase in the work attitudes (cynicism factor score).

Table 19 presents the stepwise regression analysis of two independent variables and the dependent variable, intrinsic motivation factor scores. The multiple correlation coefficient for the model was ($R = .376$; $F = 26.573$; $p<.00$) significant beyond the .05 level. Furthermore, the $R^2(.142)$, indicates that 14.2% of the

Table 19

Regression of Work Attitudes (Intrinsic Motivation Factor Score) on Independent Variables

Variable	Multiple R	R^2	R^2 Change	Partial Regression Coefficient	F
Learning on the Job	.354	.126	.126	.347	46.396**
Work Variety	.376	.142	.016	.127	26.573**
Constant				2.163	

n = 324
*p<.05
**p<.01

variance in the work attitudes (intrinsic factor score) can be attributed to the variance in the linear combination of the independent variables. Table 19 also illustrates the stepwise regression model and F values. Among the nine independent variables, learning on the job, and work variety were significantly associated with the intrinsic motivation work factor score. Seven variables in the model were not statistically significant. However, this model was significant beyond the .05 level. Again, in order to interpret relationships between the two significant variables and the criterion or intrinsic motivation work attitude factor score, each of the partial regression coefficient was examined. In general, one unit increase in any of the independent variables results in a change in the criterion variable equal to the size of the partial regression coefficients with other independent variables held constant. In other words, the partial regression coefficient measures the strength of the association between the dependent variable and a single predictor variable when the effects of the other predictor variables in the model are held constant. Consequently, it indicates that a unit increase in any of the independent variables will proportionally change the dependent or criterion variable by the same standardized coefficient for the variable. Learning on the job was the predictor variable which entered into the model on step one. The R^2 value was .126, which

indicates that this variable accounted for 13% of the explained variance in the intrinsic motivation factor score (work attitudes) when there were no other variables in the equation. The partial regression coefficient indicates that a unit increase in learning on the job corresponds with a .347 increase in the intrinsic motivation factor score. Learning on the job made the largest unique contribution to explained variance in work attitudes for the intrinsic motivation factor. Work variety was the second variable entered into the stepwise regression model. The R^2 change value was .016; therefore, work variety explained and additional 2% of the variance in the intrinsic motivation factor score. The partial regression coefficient indicates that one unit increase in work variety corresponds with a .127 increase in the intrinsic motivation factor score.

Table 20 presents a summary result obtained from the stepwise regression model of work attitudes for the extrinsic motivation factor score and selected demographic and work characteristics. The model analysis was found to have F-ratios significant beyond the .05 level. The multiple correlation coefficient for the model was R = .532 (F = 31.353; $p<.00$) and the R^2(.283), indicates that 28.3% of the variance in the work attitude factor can be attributed to the variance in the linear combination of the predictor variables. Four of the nine independent variables

Table 20

Regression of Work Attitudes (Extrinsic Motivation Factor Score) on Independent Variables

Variable	Multiple R	R^2	R^2 Change	Partial Regression Coefficient	F
Relationship of Work and School	.453	.206	.206	.414	83.044**
Nature of Job	.508	.258	.052	.241	22.636**
DUM1 (Gender)	.521	.272	.014	.126	6.054**
Supervision	.532	.283	.011	-.106	4.876*
Constant				1.154	

n = 322
*p<.05
**p<.01

[b]DUM1, Gender of respondent

were the best predictors for the extrinsic motivation work factor score.

In order to interpret the relationship among the four significant variables and the criterion variable, each partial regression coefficient was examined. In general, one unit increase in any of the independent variables results in a change in the criterion variable equal to the size of the partial regression coefficient with other independent variables held constant. In other words, the partial regression coefficient measures the strength of the association between the dependent variable and a single predictor variable when the effects of the other predictor variables in the model are held constant. Consequently, it indicates that a unit increase in any of the independent variables will proportionally change the dependent or criterion variable by the same standardized coefficient for the variable.

The relationship of work and school was the predictor variable which explained the largest proportion of variance in work attitudes for the extrinsic motivation factor score when there were no other variables in the equation. The R^2 value was .206; therefore, the relationship of work and school explained 20.6% of the variance in work attitude for the extrinsic motivation factor score and was entered into the stepwise regression model on the first step. The partial regression coefficient indicates that a unit

increase in the relationship of work and school is associated with a .414 increase in work attitude for the extrinsic motivation factor score. The nature of job variable was entered on step two in the regression model and explained an additional 5% of variance in work attitude for the extrinsic motivation factor score. The partial regression coefficient indicates that a unit increase in the nature of job corresponds with a .241 increase in the extrinsic motivation factor score. The DUM1 variable (gender) was a predictor variable entered into the regression model on the third step. The change in the R^2 value was .014 which indicates that this variable accounted for an additional 1% of variance in the work attitude for the extrinsic motivation factor score. The partial regression coefficient indicates that a one unit increase in DUM1 (gender) corresponds with a .126 increase in the extrinsic motivation factor. Supervision was the last predictor variable which entered into the regression model. The change in the R^2 value was .011, which indicates that this variable accounted for an additional 1% of variance in the work attitude for the extrinsic motivation factor score. The partial regression coefficient indicates that a unit decrease in supervision associates with a .106 increase in the extrinsic motivation factor score.

Research Question 3:

What is the relationship of work behavior of agricultural education students to gender, use of academic skills (reading, mathematics and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

Table 21 presents the result of the zero order correlation between one dependent variable (work behavior factor score) and nine independent variables for agricultural education students.

Gender and Work Behavior Factor Score

A total of 475 agricultural education students indicated their gender. Approximately 88% of the respondents were males. Only 12% were females. Gender was dummy coded as zero for females, and one for males. The correlation coefficient was .08, which indicates that the magnitude of the relationship between gender and work behavior had less than a small effect size and was not statistically significant.

W/P Project Requires Reading and Work Behavior Factor Score

A total of 467 students participated in this part of the study. Approximately 42% indicated their work/project involved reading, conversely 52% of the respondents indicated that their work/project did not require looking up unfamiliar words, reading job manuals, technical journals, financial reports, or legal documents. Additionally,

Table 21

Zero Order Correlation Between the Work Behavior Variable, and Nine Independent Variables for Agricultural Education Students from Augusta, Rockingham, and Shenandoah Counties in Virginia

Variables	Work Behavior
DUM1 (Gender) (X_6)[a]	.078
DUM2 (Work Required Reading)[b] (X_7)	-.064
DUM3 (Work Required Math)[c] (X_8)	-.072
DUM4 (Work Required Writing)[d] (X_9)	-.019
Supervision (X_3)	.027
Work Variety (X_2)	-.063
Nature of Job (X_1)	-.003
Relationship of Work and School (X_4)	.340**
Learning on the Job (X_5)	-.112*

* $p<.05$
** $p<.01$

[a]DUM1, Gender of respondent
[b]DUM2, Do you read as part of your work?
[c]DUM3, Do you use math as part of your work?
[d]DUM4, Do you use writing as part of your work?

work/project involved reading was dummy coded as zero for "no," and one for "yes." As shown in Table 21, the correlation coefficient was -.06, which indicates that the magnitude of the relationship between work requires reading and work behavior had less than a small effect size and was not statistically significant.

W/P Involved Mathematics and Work Behavior Factor Score

A total of 468 agricultural education students participated in this aspect of the study. Approximately 63% of the students indicated that their W/P involved mathematics, while 37% did not require mathematics in their W/P. Additionally, W/P involved mathematics was dummy coded as zero for "no," and one for "yes." As shown in Table 21, the correlation coefficient was -.07, which indicates that the magnitude of the relationship between W/P involved mathematics and the work behavior factor had less than a small effect size and was not statistically significant.

W/P Involved Writing and Work Behavior Factor Score

A total of 474 subjects participated in this part of the study. Approximately, 44% of the sample indicated that their W/P requires writing, conversely, 56% responded that the W/P did not involve the following: print or write simple sentences, write reports, prepare business letters, summaries, reports using a given format, write manuals, and editorials, or journals. Additionally W/P involves writing

was dummy coded as zero for "no," and one for "yes." As shown in Table 21, the correlation coefficient was -.02, which indicates that the magnitude of the relationship between W/P involves writing and the work behavior factor had less than a small effect size and was not statistically significant.

Supervision and Work Behavior Factor Score

A total of 340 agricultural education students participated in this aspect of the research. The supervision of 52% of the respondents was directive, the supervision of 23% involved democratic discussion, and the supervision of 25% was half directive and half involving democratic discussion. The mean work behavior factor score was determined for three response categories representing supervision. As shown in Table 21, the correlation coefficient was .03, which indicates that the magnitude of the relationship between supervision and the work behavior factor score had less than a small effect size and was not statistically significant.

Work Variety and Work Behavior Factor Score

A total of 461 agricultural education students participated in this part of the research. Approximately 35% used repetition in performing the work functions and 40% did a number of different kinds of things in the work environment. The mean work behavior factor score was determined for three response categories representing work

variety. As shown in Table 21, the correlation coefficient was -.06, which indicates that the magnitude of the relationship between work variety and the work behavior factor had less than a small effect size and was not statistically significant.

Nature of Job and Work Behavior Factor Score

A total of 475 agricultural education students participated in this aspect of the study. Approximately 37% of the respondents indicated that nature of job was very important in seeking a part-time job after school or weekends during the school year. Only 7% indicated that nature of job was not important in seeking a part-time job after school or weekends during school year. Additionally, nature of job was a summative rating scales or Likert-type scale, which was obtained by adding selected items that measured the same response scores. The mean work behavior factor score was determined for four possible response categories representing nature of job. As shown in Table 21, the correlation coefficient was -.00, which indicates that the magnitude of the relationship between nature of job and the work behavior factor had no effect size and was not statistically significant.

Relationship of School and Work, and Work Behavior Factor Score

A total of 471 agricultural education students participated in this aspect of the research. Approximately

34% of the respondents agreed with statements such as "my job has influenced by career choice," and "because of my job, I come to school unprepared." About 38% of the respondents disagreed with such statements. Furthermore, the relationship of work and school was a summative rating scale or Likert-type scale which was obtained by adding selected items that measured the same response scores. The mean work behavior factor was determined for four possible response categories representing relationship of work and school. As shown in Table 21, the correlation coefficient was .34, which indicates that the magnitude of the relationship between relationship of work and school, and the work behavior factor score had a medium effect size and was statistically significant beyond the .05 level.

Learning on the Job and Work Behavior Factor Scores

A total of 467 agricultural education students participated in this aspect of the research. Approximately 45% of the respondents indicated that learning on the job/project develops a great deal of skills and abilities. Only 7% indicated that learning on the job/project did not at all facilitate skills and abilities development such as: follow directions; get along with people; be on time; take responsibility for their work, etc. Furthermore, learning on the job/project was a summative rating scale or Likert-type scale which was obtained by adding selected items that measured the same response scores. The mean work attitude

factors were determined for four possible response categories representing learning on the job/project.

As shown in Table 21, the correlation coefficient for the work behavior factor score was -.11, which indicates that the magnitude of the relationship between work behavior and learning on the job/project had a small effect size and was statistically significant at the .05 level.

Research Question 4:

What are the best predictors of work behaviors of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

The fourth research question was explored with a stepwise regression model to identify the best predictors among the nine independent variables of the work behavior factor score.

Table 22 presents a summary of results obtained from the regression model of work behaviors (factor score) and selected work characteristics. The model analysis was found to have F-ratios significant beyond the .05 level. The multiple correlation coefficient (R=.451) was statistically different from zero (F=27.412; $p<.00$). In other words, there was a statistically significant relationship between the work behavior factor and the linear combination of the predictor variables in the model. Furthermore, the

Table 22

Regression of Work Behaviors (Factor Score) on Independent Variables

Variable	Multiple R	R^2	R^2 Change	Partial Regression Coefficient	F
Relationship of work and School	.350	.123	.123	.446	72.175**
Learning on the Job	.437	.191	.068	-.254	22.858**
DUM3 (Work requires Math)[c]	.451	.203	.012	-.114	4.957*
Constant				.711	

n = 325
*p<.05
**p<.01

[c]DUM3, Do you use math as part of your work?

coefficient of determination (R^2) in the model was .203 which indicates that 20.3% of the variance in the work behavior factor score can be attributed to the variance in the linear combination of the predictor variables. Table 22 also illustrates the regression coefficients and F values. Among the nine independent variables, DUM3 (work involved mathematics), relationships of school and work, and learning on the job were predictors for the work behavior factor score at or beyond the .05 level. Six of the independent variables were eliminated from the model. In order to interpret the relationship between the three significant variables and the criterion or work behavior factor score, each partial regression coefficient was examined. In general, one unit increase in any of the independent variables resulted in a change in the criterion variable equal to the size of the partial regression coefficient with other independent variables held constant. In other words, the partial regression coefficient measures the strength of the association between the dependent variable and a single predictor variable when the effects of the other predictor variables in the model are held constant. Consequently, it indicates that a unit increase in any of the independent variables will proportionally change the dependent or criterion variable by the same standardized coefficient for the variable. The variable, the relationship of work and school was entered into the regression model on the first

step. The R^2 value was .123 which indicates that the relationship of work and school explained 12.3% of the variance in the work behavior factor score. The partial regression coefficient indicates that a unit increase in the relationship of work and school corresponds with an increase of .446 work behavior factor score. The variable, learning on the job entered into the stepwise regression model on step two. The change in R^2 value was .068 which indicates that learning on the job explained an additional 7% of the variance in the work behavior factor score. The partial regression coefficient indicates that a unit decrease in learning on the job corresponds with .254 increase in the work behavior factor score.

Dum3 (work involved mathematics) was the last predictor variable which entered into the regression model. The change R^2 value was .012 which indicates that this variable accounted for an additional 1% of the explained variance in the criterion or the work behavior factor score. The partial regression coefficient indicates that a unit decrease in DUM3 (work involved math) corresponds with a .114 increase in the work behavior factor score.

Chapter Summary

This chapter has presented the description of the sample, analysis of data, and findings of the research. A descriptive analysis of the sample provided the following information: (a) the sample consisted of 477 agricultural

education students from 11 secondary schools in three Virginia counties and (b) Augusta had 182, Rockingham had 155, and Shenandoah had 140 agricultural education students who participated in this research. Participants in the study were as 88% male and 12% female.

Results revealed three factor scores for 35 work attitude statements, and one factor score for 9 work behavior statements from the factor analysis. These factor scores were used as dependent variables for the study. The magnitude of the relationships that exists between the criterion variables (cynicism factor score, intrinsic motivation factor score and extrinsic motivation factor score) and the nine independent variables were interpreted based on the criteria suggested by Cohen (1977). The relationships were described in terms of zero order correlation coefficients when all the independent variables were considered jointly. Work attitude factor scores (cynicism about work, intrinsic motivation about work, and extrinsic motivation about work), and the work behavior factor score were utilized as dependent variables for the stepwise multiple linear regression analysis (MRA) on nine independent variables to determine the best predictors of work attitudes and work behaviors for agricultural education students in Virginia. The results revealed that the best predictors for cynicism about work factor score of work attitudes were relationship of work and school, DUM2 (work

requires reading), work variety, learning on the job, and nature of job. Learning on the job and work variety were the best predictors for the intrinsic motivation factor score of work attitudes. The relationship of work and school, nature of the job, DUM1 (gender), and supervision were the best predictors for the extrinsic motivation factor score of work attitudes. The relationship of work and school, learning on the job, and DUM3 (work requires mathematics) were the best predictors for the work behavior factor score of work behaviors. Summary, conclusions, and recommendations, appear in chapter 5.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter consists of five sections. First, a summary of the research is given. Second, the research questions are again presented. Third, conclusions developed from the research are presented. The fourth section contains the recommendations of the research for academicians, practitioners, and decision makers. Finally, suggestions for further research are provided for the purpose of stimulating continued research in the area of work attitudes and work behaviors.

Summary of the Study

Statement of the Problem

Agricultural education students need essential work related attitudes and behavior for success in their chosen careers. If agricultural education is to succeed in preparing students for the workplace of the future, an important consideration will be whether the curriculum can have an impact on the development of work attitudes and work behaviors needed by employers and society. McMillion et al. (1992) indicated that poor work attitudes by youth entering the labor force is more of a problem than having poor job skills. Bracey (1991) found that 80% of employers [American] do express concern about the skills of young

workers but not primarily about academic skills they bring from school. Instead, they complain that young people lack a work ethic in that they don't show up on time or don't show up at all, and they don't work hard when they are present. Raizen (1989) found that employers gave highest priority to personal management skills such as self-control, honesty, and integrity, pride in one's work, and respect for others followed by academic skills, and teamwork skills. Buck and Barrick (1987) found basic categories of work desired by employers to include honesty, to include good attitudes, to include self-esteem, to include positive self-image, to include personal and career goals, to work well with peers, to accept assignments pleasantly, to accept all types of people, to respect the rights and property of other people, to complete work on time, to perform extra work and overtime, to exhibit loyalty to the organization and its employees, and to show concern for their future career with the organization.

Researchers have advocated different approaches for the study of work attitudes and work behaviors. Each approach seems to attempt to explain work attitudes and work behavior based on background factors, sociological factors, and psychological factors. When considering work from this perspective, it becomes clear that many factors associated with the individual and those found within the workplace can

play a significant role in the fulfillment of sociological and psychological needs. The degree of fulfillment of sociological and psychological needs will in turn influence work attitudes and work behaviors (Kim & Wright, 1989). There is a lack of information about which factors are most related to attitudes and behaviors toward work.

The primary purpose of the study was to examine the relationship of certain factors to work attitudes and work behaviors of students enrolled in agricultural education programs from three counties in Virginia.

The Sample

The study sample consisted of 477 agricultural education students from 11 different secondary schools. These schools were selected based on several factors including the experience of the agricultural education teachers, the type of agricultural education programs, the type of work experience programs, exemplary practices of the teacher in conducting and supervising work experience programs, and a sufficient number of agricultural education students in the programs.

Instrumentation

A two-part instrument was used to collect the data. Part 1 of the instrument consisted of demographics, and questions that allowed the researcher to identify the gender, the family size, parental occupations, age of the

respondents, parents' annual income, and the students' annual income. The majority of these demographic variables were not included in the research for analysis purposes, rather they were used only for identification of the respondents' characteristics. Part 2 of the instrument consisted of background characteristics and attitudes, questions about school activities, behaviors and attitudes toward school, an extensive set of questions about characteristics of their current job, and attitudes and behaviors about work in general.

Data Collection

Letters were mailed to 11 agricultural education teachers in the three counties regarding a study to explore work attitudes and work behaviors of agricultural education students. A follow-up letter was mailed which included a self-addressed stamped envelope seeking scheduling and planning information from the teachers pertaining to dates and times available for the data collection in their respective classes. The researcher contacted the agricultural education teachers by telephone and confirmed the appropriate dates and periods for the data collection in the 11 secondary schools. The data were collected near the end of the 1991-92 school year. During data collection in each school, students were told they were part of a survey pertaining to school and work, the form they were asked to

complete was a survey and not a test, that they should give serious attention in answering questions about themselves, and they should not put their names on the completed forms. Instead, a space was provided to write an identification number. A total of 477 agricultural education students participated in the study.

Data Analysis

All questionnaires were usable for analysis purposes. The data were analyzed at the computing center of Virginia Polytechnic Institute and State University. The analysis of the data was in relation to the specific research questions developed for the study. A frequency count was completed to obtain the numbers and percentages for each of the independent variables. In addition, a frequency count was completed to obtain the numbers, means, and standard deviations for each of the dependent variables which were cynicism about work, intrinsic motivation, extrinsic motivation, and work behavior. Zero order correlation coefficients were computed to determine whether there was a relationship of work attitude and work behavior to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job. Finally, stepwise multiple regression analysis (MRA) was used to determine the best predictors of the work attitude factors. These work

attitude factors were cynicism, intrinsic motivation, and extrinsic motivation. Also stepwise multiple regression analysis (MRA) was used to determine the best predictors of the work behavior factor among gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job.

Findings

This study sought answers to four major research questions. Each of the four research questions are presented along with their associated data and findings.

Research Question No. 1: What is the relationship of work attitudes of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

The magnitude of the relationships was interpreted based on the suggested effect size of Cohen (1977). The relationships accepted as significant were those in which the correlation coefficients were statistically significant at the $p<.05$ levels.

When all the independent variables were considered jointly, gender (being male) correlated positively with the cynicism factor, and the extrinsic motivation factor. Gender had correlation coefficients of .12 with the cynicism

factor and .15 with the extrinsic motivation factor. Both correlation coefficients were of a small effect size and significant.

Use of academic skills (reading, mathematics, and writing), correlated negatively with the cynicism factor of work attitudes and positively with the intrinsic motivation factor of work attitudes. The correlation coefficients for the cynicism factor were -.14 for reading, -.10 for math, and -.14 for writing. Students were less cynical if they utilized academic skills at the work site. The correlation coefficients for the intrinsic motivation factor were .20 for reading, .20 for math, and .19 for writing. The correlation coefficients for both the cynicism factor and the intrinsic motivation factor were small to medium effect sizes and significant. The correlation coefficients between academic skills and the extrinsic motivation factor were too small to be significant.

Work variety correlated negatively with the cynicism factor (-.17), and correlated positively with the intrinsic motivation factor (.10). These factors had small effect sizes and were significant.

The relationship of school and work correlated positively with the cynicism factor (.36), and with the extrinsic motivation factor (.39). These factors had medium effect sizes and were significant.

Nature of job (importance of job) correlated positively with the intrinsic motivation factor (.22) and with the extrinsic motivation factor (.26) of work attitudes for these students. These factors had small to medium effect sizes and were significant.

Learning on the job correlated positively with the intrinsic motivation factor (.30), and with the extrinsic motivation factor (.20) for work attitudes of agricultural education students. The correlations were medium effect size for the intrinsic motivation factor and small to medium effect size for the extrinsic motivation factor for work attitudes and were significant.

Some of the independent variables were not significantly related to all of the work attitude factors. Correlation coefficients revealed that (a) supervision, (b) nature of job, and (c) learning on the job were not statistically significant for the cynicism about work factor score of work attitudes. Also, (a) gender. (b) supervision, and (c) the relationships of work and school correlation coefficients were not statistically significant on the intrinsic motivation factor score of work attitudes. In addition, (a) use of academic skills (reading, mathematics, and writing), (b) supervision, and (c) work variety were not significantly correlated with the extrinsic motivation factor score for work attitudes.

Research Question No. 2: What are the best predictors of work attitudes of agricultural education students in regards to gender, use of academic skills (reading, mathematics, and writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

The second research question was explored using multiple linear regression analysis (MRA) to identify the best predictors among the nine independent variables of work attitude factor scores (cynicism about work, intrinsic motivation, and extrinsic motivation). A stepwise regression model was utilized to determine the proportion of variance in the dependent variable that was explained by the independent variables when all the independent variables were linearly combined.

The results for the first criterion variable (cynicism about work factor score) and the nine predictor variables are found in Table 18. These results indicate that the multiple correlation coefficient (R) was statistically different from zero ($R = .514$; $F = 23.090$; $p<.00$). In other words, there is a statistically significant relationship between the cynicism about work factor score and the linear combination of the predictor variables in the model. Furthermore, the $R^2(.265)$, indicates that 26.5% of the variance in the work attitudes (cynicism about work factor score) can be attributed to the variance in the linear

combination of the independent variables. Among the nine predictor variables, relationship of work and school, work/project involved reading, work variety, learning on the job, and nature of the job were the best predictors for the cynicism factor score of work attitudes. The partial regression coefficients and the contribution of the variance of each predictor variable were examined to interpret the results.

In general, a unit increase in any of the predictor variables results in a change in the criterion variable equal to the size of the partial regression coefficient with other independent variables held constant. When all the predictor variables were linearly combined, the relationship of work and school entered into the model on step one. The R^2 value was .170, which indicates that this predictor accounted for 17.0% of the explained variance in work attitudes (cynicism about work factor score). The relationship of work and school made a significant contribution when there were no other predictor variables. The partial regression coefficient indicated that a unit increase in the relationship of work and school corresponds with a .476 increase in the cynicism about work factor score (work attitudes). This meant that when the school and work environment is closely coordinated, cynicism toward work is higher. The predictor variable, DUM2 (work involved

reading) entered on step two and contributed an additional 5% to the explained variance in the cynicism work attitude factor. A unit decrease in DUM2 (work involved reading) corresponds with a .181 increase in the cynicism work attitude factor. This meant that the respondents were less cynical if their work or project was the kind that involved reading. Work variety entered the model on the third step and contributed an additional 3% to the explained variance of the cynicism work attitude factor. A unit decrease of work variety associated with a .161 increase in cynicism work attitude factor. This meant that the use of work variety provides motivation for self-respect, sense of pride and responsibility in the work environment. Learning on the job entered on the fourth step of the model and accounted for an additional 1% to the explained variance in the work attitude factor. One unit decrease in learning on the job corresponds with a .155 increase in the cynicism work attitude factor. This meant that learning on the job helps students develop teamwork, practical problem solving ability, a positive work ethic, and other attributes that may not be taught in conventional academic classes. Nature (importance) of job entered on the fifth step of the model. The R^2 change was .012, which indicates that this variable accounted for 1% of additional variance explained in the cynicism work attitude factor. The partial regression

coefficient indicates that a unit decrease in the nature (importance) of job corresponds with a .122 increase in the cynicism work attitude factor. This meant that nature (importance) of job contributes to a sense of pride, self-respect, self-fulfillment, material well being, wealth, and higher social status.

Increases in use of academic skills, in work variety, in opportunity to learn on the job, and in importance of job predicted lower cynicism; however, closer coordination of school and work did the opposite which was to predict higher cynicism. The results for the second criterion variable (intrinsic motivation factor score) and the nine predictor variables are found in Table 19. These results indicate that the multiple correlation coefficient (R) was statistically different from zero ($R = .376$; $F = 26.573$; $p<.00$). In other words, there is a statistically significant relationship between the intrinsic motivation factor score and the linear combination of the predictor variables in the model. The R^2 (.142) indicates that 14.2% of the variance in the work attitudes (intrinsic motivation factor score) can be attributed to the variance in the linear combination of the predictor variables.

Among the nine predictor variables, learning on the job, and work variety were the best predictor variables for the intrinsic motivation factor score of work attitudes.

Seven of the nine variables were not statistically significant. Again, in order to interpret the two significant predictors and the intrinsic motivation factor score, partial regression coefficients and the contribution of the variance of each predictor was examined. When all the predictor variables were linearly combined, learning on the job entered into the model on step one. The R^2 value was .126, which indicates that this predictor accounted for 12.6% of the explained variance in work attitudes (intrinsic motivation factor score). A unit increase in learning on the job associates with a .347 increase in the intrinsic motivation work attitude factor score. This meant that a good work environment when properly coordinated with the school program provides a sense of pride, responsibility, internal satisfaction, and personal growth. Work variety entered second into the stepwise regression model. The R^2 change value was .016, indicating that work variety explained an additional 2% of the variance in the intrinsic motivation factor score. The partial regression coefficient indicated that one unit increase in work variety corresponds with a .127 increase in the intrinsic motivation work attitude factor score. This meant that work variety increases responsibility, pride, and personal satisfaction.

The results for the third criterion variable (extrinsic motivation factor score), and the nine predictor variables

are found in Table 20. These results indicate that the multiple correlation coefficient (R) is statistically different from zero ($R = .532$; $F = 31.353$; $p<.00$). In other words, there is a statistically significant relationship between the extrinsic motivation factor score and the linear combination of the predictor variables in the model. The R^2 (.283) indicates that 28.3% of the variance in the work attitudes (extrinsic motivation factor score) can be attributed to the variance in the linear combination of the predictor variables.

Among the nine predictor variables, relationship of work and school, nature of job, DUM1 (gender), and supervision were the best predictors for the extrinsic motivation factor score of work attitudes. Five of the predictor variables were not statistically significant. Again, in order to interpret the four significant predictor variables and the extrinsic motivation factor score of work attitudes, the partial regression coefficients and the contribution of the variance of each predictor was examined. When all the predictor variables were linearly combined, the relationship of work and school, nature of job, DUM1 (gender), and supervision were the best predictors for the extrinsic motivation factor score for work attitudes. The relationship of work and school entered in step one of the model and made a significant contribution when there were no

other predictor variables. The R^2 value was .206, indicating that the relationship of work and school accounted for 20.6% of the explained variance in the model. The partial regression coefficient indicated that a unit increase in the relationship of work and school corresponds with a .414 increase in the extrinsic motivation factor score of work attitudes. This meant that training and development which utilized the work environment and conventional classroom practices contributes to a recognized benefit (salary, promotion, material wealth, and social status among peers) in seeking advanced knowledge and skills for the future. Nature (importance) of job entered second in the stepwise regression model. The R^2 change was .052, which indicates that nature of job explained an additional 5% to the variance in the extrinsic motivation factor score. The partial regression coefficient indicated that one unit increase in the nature of job corresponds with a .241 increase in the extrinsic motivation factor score of work attitudes. This meant that nature of job provides opportunities in the work environment in regards to knowledge and skills needed for promotion, salary, higher social economic status, and material well-being. The variable, DUM1 (gender) entered third in the model and contributed an additional 1% to the explained variance in the extrinsic motivation factor score of work attitudes.

The partial regression coefficient indicates that one unit increase in DUM1 (gender) or being male corresponds with a .126 increase in the extrinsic motivation factor score of work attitudes. This meant that prospective workers or boys who are pursuing employment or entrepreneurial opportunities value advancement, material wealth, social economic status, and higher status among peers. Supervision entered fourth in the model and contributed an additional 1% to the explained variance in the extrinsic motivation factor score of work attitudes. The partial regression coefficient indicates that a unit decrease in supervision (more directive) corresponds with a .106 increase in the extrinsic motivation factor score of work attitudes. Increases in coordination of school and work, in importance of the job, in the percent of males, in democratic supervision predicted an increase in extrinsic motivation to work.

Research Question No. 3: What is the relationship of work behavior of agricultural education students in regards to gender, use of academic skills (reading, math, and writing), supervision, work variety, nature of job, relationship of work and school, and learning?

The magnitude of the relationships relevant to question number 3 was interpreted based on the suggested effect size of Cohen (1977). The relationships accepted as significant

were those in which the correlation coefficients were statistically significant at $p<.05$ levels.

When all the independent variables were considered jointly, DUM1 (gender), use of academic skills (reading, mathematics, and writing), nature of job, work variety, and supervision were not statistically significant or did not reach Cohen's suggested effect size for the work behavior factor score (ethical or honest work behavior). The correlation coefficients for the work behavior factor were .34 for the relationship of work and school and -.11 for learning on the job. The magnitude of the relationship of work and school to the work behavior factor was a medium effect size. This meant that when the work environment and the school curriculum are closely coordinated ethical work behavior is more likely to occur at the work site.

The correlation coefficient of learning on the job and the work behavior factor score (ethical work behavior) was significant. The magnitude of the relationship of learning on the job and work behavior factor score had a small effect size. This meant that a work environment which is properly designed as a learning atmosphere for developing skills and abilities is more likely to result in ethical work behavior.

Research Question No. 4: What are the best predictors of work behavior of agricultural education students in regards to gender, use of academic skills (reading, math, and

writing), supervision, work variety, nature of job, relationship of work and school, and learning on the job?

The fourth research question was explored using multiple linear regression analysis (MRA) to identify the best predictors among the nine independent variables and the work behavior factor score (ethical work behavior). A stepwise regression model was utilized to determine the proportion of variance in the dependent variable (work behavior factor score) explained by the predictor variables when all the independent variables were linearly combined.

The results for the criterion variable (work behavior factor score) and the nine predictor variables are found in Table 22. The multiple correlation coefficient (R) was statistically different from zero ($R=.451$; $F=38.171$; $p<.00$). In other words, there is a statistically significant relationship between the work behavior factor score and the linear combination of the predictor variables in the model. Furthermore, the $R^2 = .203$, that is 20.3% of the variance in the work behavior factor score can be attributed to the variance in the linear combination of the predictor variables.

Among the nine predictor variables, the relationship of work and school, learning on the job, and DUM3 (work involved mathematics) were the best predictor variables for

the work behavior factor score. Six of the predictor variables were not statistically significant.

In order to interpret the three significant predictors of the work behavior factor score, the partial regression coefficients and the contributions of each predictor variable variance were examined. The relationship of work and school entered on step one of the model and made a significant contribution when there was no other predictors. The R^2 value was .123, which indicates that the relationship of work and school accounted for 12.3% of the explained variance in the model. The partial regression coefficient indicates that a unit increase in the relationship of work and school corresponds with a .446 increase in the work behavior factor score (ethical work behavior). This meant when the work experience and the school curriculum are cohesively providing the necessary knowledge and skills for the work environment and the educational attainment in school, ethical behavior or honesty occurs at the work site.

Learning on the job entered second in the stepwise regression model. The R^2 change was .068, which indicated that learning on the job explained an additional 7% of the variance in work behavior factor score. The partial regression coefficient indicates that a unit decrease in the opportunity to learn on the job corresponds with a .254 increase in the work behavior factor score (ethical work

behavior). This meant that a work environment which does not provide for developing skills and abilities to follow directions, get along with people, be on time, take responsibility for the work, manage money, set priorities, communicate with others, make decisions and improve basic skills is associated with more ethical work behavior.

DUM3 (work involved mathematics) entered third in the model and contributed an additional 1% to the explained variance in the work behavior factor score. The partial regression coefficient indicates that a unit decrease in DUM3 (work involved mathematics) corresponds with a .114 increase in the work behavior factor score (ethical work behavior). This meant work environments which do not involve mathematics are associated with honest or ethical work behavior. This may be explained in part by the fact that handling money involves mathematics and several of the honesty statements had to do with handling money.

Conclusions

This study examined work attitudes and work behaviors by secondary agricultural education students from Augusta, Rockingham, and Shenandoah Counties in Virginia. Its purpose was to answer two major research questions pertaining to work attitudes, and two major research questions pertaining to work behaviors to be utilized by agricultural education teachers, academicians,

practitioners, and decision makers who are responsible for the programs of vocational education in agriculture.

The conclusions were generated as a result of the dissertation research findings from statistical significance and from practical importance. The notion of statistical significance versus practical importance was emphasized by Hinkle, Wiesma, and Jurs (1988). They reported that practical importance cannot be measured by the inferential statistical test. Deciding what magnitude of correlation coefficient (r) indicates a relationship of practical importance is somewhat arbitrary; the interpretation depends to some extent on the variables under consideration. The conservative rule of thumb chosen by Hinkle et al. is that an r less than .30 or r^2 less than .09 indicates little, if any, relationship between the variables. Cohen (1977) used a liberal rule of thumb of small effect size (r = .10 or r^2 = .01) for decisions concerning significance in the social sciences.

These two rules of thumb, conservative and liberal, provided the guidelines for decision about practical importance for this research. The guidelines used were that r must be .20 and the r^2 change must be 4% for an independent variable to be acceptable as having practical importance. The .20 is the midpoint between the suggestions of the two references and .20 squared is 4%.

Discussion and Conclusions Relevant to Research Question No. 1

A correlation was found between relationship of work and school and two work attitude factors (cynicism about work and extrinsic motivation). A cynical attitude toward work is related to a close relationship between work and school. It appears that the kind of jobs that students in this population get or visualize getting are not the ones which provide opportunity for such things as advancement in career and personal development. This result concurs with that of McMillion et al. (1992) in that students in vocational programs are more cynical and honest. Also, the students considered work as an extrinsically motivating factor or means to material comfort and economic well-being. This result agrees with that of McMillion et al. (1992) in that vocational students are much more materialistic and more honest than academic or general track students.

Nature (importance) of the job was related to two work attitude factors (intrinsic motivation and extrinsic motivation). The importance of the job provided this student population with intrinsic motivation or a sense of pride, responsibility, self-respect, and self-satisfaction, as well as increased salary, promotion, higher social status, and respect from their peer groups. This result

supported Greenberger and Steinberg (1986) who concluded that the importance of jobs is based on:

> (a) whether the work experience impacts skills or knowledge valuable for adult work life; (b) whether the work is performed in order to fill a financial need of the youngsters' family or the community or out of the youngsters' future financial needs; and (c) whether the work brings young people into contact with adults who have a stake in preparing them for adulthood. (pp. 41-46)

Learning on the job was related to two work attitude factors (intrinsic motivation and extrinsic motivation). This result supported Greenberger and Steinberg (1986) who concluded that learning on the job provides few opportunities for young people to practice or acquire work habits that will serve them well in the future. The result also supported that of McMillion et al. (1992) in that vocational students were more materialistically motivated toward work.

It could be concluded that the findings concerning the relationship of work and school, nature (importance) of the job, and learning on he job were sufficient to be of practical importance.

Using the r = .20 rule, gender, use of academic skills (reading, mathematics, and writing), supervision, and work

variety variables were of no practical importance for the cynicism factor. The work requires writing variable, supervision variable, and the work variety variable were of no practical importance for the intrinsic motivation factor. Also, gender and learning on the job variables were of no practical importance for the extrinsic motivation factor.

Conclusions that follow concern variables which were not significantly related. Supervision, nature of job, and learning on the job were not related to the cynicism work attitude factor. Gender, supervision, and the relationship of work and school were not related to the intrinsic work attitude factor. In addition, the use of academic skills (reading, mathematics, and writing), supervision, and work variety were not related to the extrinsic work attitude factor.

Discussion and Conclusions Relevant to Research Question No. 2

The best predictors of the cynicism factor of work attitudes are the relationship of work and school and work/project requires reading. Using the r = .20 or 4% rule, work variety, learning on the job, and nature (importance) of the job were not of practical importance. Also, gender, work requires mathematics, work requires writing, and supervision were not useful predictors for the cynicism work attitude factor.

The best predictor of the intrinsic motivation factor is learning on the job. Using the r = .20 or 4% rule, work variety was not of practical importance for the intrinsic motivation work attitude. Also, gender, academic skills (reading, mathematics, and writing), relationship of work and school, and supervision were not useful predictors for the intrinsic motivation work attitude factor.

The best predictors of the extrinsic motivation work attitude factor are the relationship of work and school and the nature (importance) of the job. Using the r = .20 or 4% rule, gender and supervision were not of practical importance for the extrinsic motivation work attitude factor. Also, academic skills (reading, mathematics, and writing), work variety, and learning on the job were not useful predictors for the extrinsic motivation work attitude factor.

The findings indicate that relationship of school and work, work/project requires reading, learning on the job, and nature (importance) of the job were of practical importance for the prediction of work attitudes. It could be concluded that the relationship of school and work, opportunity to learn on the job, nature (importance) of the job, and work/project requires reading are pedictive of work attitudes.

Discussion and Conclusions Relevant to Research Question No. 3

A correlation was found between the relationship of work and school and the work behavior factor. Students are more honest or practice ethical work behaviors if the relationship of work and school is designed to prepare them for both educational attainment in school and the work environment. This result is contrary to that of Greenberger and Steinberg (1986). They concluded that due to the demands of school, working may elevate certain forms of school and work related unethical behaviors.

Using the r = .20 rule, learning on the job was not important for the work behavior factor for practical purposes. Gender, academic skills (work requires reading, work requires mathematics, and work requires writing), nature (importance) of the job, work variety, and supervision were not related to the work behavior factor. It can be concluded then that good work behavior is associated with comprehensive cooperative education programs which emphasize exemplary and innovative coordination between the school and work environment.

Discussion and Conclusions Relevant to Research Question No. 4

For the single work behavior factor the best predictors were the relationship of work and school and learning on the

job. Using the r = .20 or 4% rule, work requires mathematics was not important for the work behavior factor for practical purposes. Gender, work requires reading, work requires writing, nature of the job, work variety, and supervision were not useful predictors for the work behavior factor. It could be concluded that properly designed vocational education programs which emphasize innovative relationship of work and school and learning on the job are predictive of honest or ethical work behaviors.

Recommendations

The findings and conclusions for this dissertation warrant the following recommendations for agricultural education teachers, academicians, practitioners, and others who are in a position to make decisions that affect or influence the programs of vocational education in agriculture.

It is recommended that agricultural education have a partnership with business and the community. School-to-work education systems are globally or internationally successful models. Agricultural education is known for supervised agricultural experience programs. The question is what should be included or changed in the nature of the program. Businesses need to communicate with educators the type of employees they need and the skills these employees should

have. At the same time, educators have to be responsive to these needs and develop programs for the future workforce.

The relationship of school and work was associated with three of the four work dimensions (cynicism about work, extrinsic motivation, and work behavior) and is recommended even though cynicism increases as relationship of school and work increases. A possible explanation may be the exclusion of variables such as the quality of job, aptitude skills, and others. Relationship of school and work, developing academic skills (reading), work variety, an opportunity to learn on the job, and the nature (importance) of the job were predictive of work attitudes and honest or ethical work behaviors.

It is also recommended that educators, and business partners implement cooperative vocational education programs in which the on-job part of the education fully utilizes academic skills (reading, mathematics, and writing), and work variety for training and development of agricultural education students. The respondents indicated that their W/P was not moderately or substantially using academic skills (reading, mathematics, and writing), and work variety to stimulate intellectual maturation.

It is recommended that agricultural education provide training, retraining, and upgrading of vocational education services for workers in high demand skills and office

management. Basically, this research revealed that when the work environment is properly designed for learning on the job (developing skills and abilities to follow directions, get along with people, be on time, take responsibility for work, manage money, set priorities, communicate with others, make decisions, and improve basic skills) ethical or honest work behaviors occur.

Recommendations for Further Research

This research has been primarily concerned with the investigation of the work attitudes and work behaviors of agricultural education students. Additional research efforts should be conducted to include other service areas (trade and industrial education, home economics, marketing education, business education, and others) to further explain the work attitudes and behaviors of youngsters in the work site.

An additional recommendation for further research is to compare the work attitudes and work behaviors of cooperative education and home-based enterprise agricultural education students. In this study the students indicated that their work/project was not moderately or substantially using academic skills (work requires reading, work requires mathematics, and work requires writing), and work variety. They also indicated that coordination of school and work was associated with cynical work attitudes which could have been

just for employees instead of for the self-employed since this study was not designed to separate the two work options.

A final recommendation for further research is to include more counties from similar and different environmental settings (rural and urban). This could enhance the extent of generalization of the nature of work attitudes and work behaviors relationship found in the research.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

Thank you for your assistance. Please place the completed questionnaire in the stamped, pre-addressed envelope provided.

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VIRGINIA TECH
Agriculture Education Program
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WORK EXPERIENCE OF AGRICULTURE STUDENTS IN VIRGINIA

This research study seeks input from work experience programs of students on Agriculture Education program in Virginia. The findings will guide educators in developing programs and procedures that should equip students for employment.

The questionnaire developed for this study is composed of two major sections. The first section includes demographic information. The second section of the questionnaire asked the students to answer questions about school and work.

Thank you for your participation.

School _____
Teacher _____
Period _____
Class Roll # or 3 initials _____

WORK EXPERIENCE OF AGRICULTURE STUDENTS IN VIRGINIA

1. Gender (circle one choice)

   1 = Male
   2 = Female

2. How many people live at your home? (circle one choice)

   a. Three or less
   b. Four to six
   c. More than six

3. What is your father's occupation?

   _____

4. What is your mother's occupation?

   _____

5. Circle the educational level for each parent.

	Less than High Schl Diploma	High Schl Diploma	Some College	Bachelor's Degree	Above Bachelor's
Father	1	2	3	4	5
Mother	1	2	3	4	5

6. What is your family's annual income? (check one choice)

   Income level

   _____a. $9,999 or less
   _____b. $10,000 to $19,999
   _____c. $20,000 to $29,999
   _____d. $30,000 to $39,999
   _____e. $40,000 to $49,999
   _____ f. $50,000 to $59,999
   _____g. $60,000 to $69,999
   _____h. $70,000 to $79,999
   _____ i. $80,000 or more
   _____ j. I don't know

7. What is your age? _____

8. What is your present high school class?

   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior

9. What is your annual income (including allowance)? (circle one choice)

   a. None or less than $100
   b. $101 to $1,000
   c. $1,001 to $2,000
   d. $2,001 to $3,000
   e. $3,001 to $4,000
   f. $4,001 to $5,000
   g. $5,001 to $6,000
   h. More than $6,000

10. On the average how many hours do you work: (including ownership projects):

    a. During the school week (M-F)? _____
    b. During the week-end (S-S)? _____
    c. Describe your work and/or projects

    _____

    _____

    _____

A.1. Why did you want this job or ownership project? (circle ALL that apply)

a. To buy things
b. To save for my future education
c. To save for other purposes
d. For the experience of working
e. To learn new skills
f. My friends worked there
g. My parents wanted me to work
h. Other _____

2. How satisfied are you with your job and/or projects as a whole? (circle one choice)

a. Extremely satisfied
b. Very satisfied
c. Somewhat satisfied
d. Somewhat dissatisfied
e. Very dissatisfied
f. Extremely dissatisfied

3. How important would each of the following be to you if you were seeking a part-time job after school or on weekends during the school year? (Circle ONE choice for each line)

	Not Important	A Little Important	Pretty Important	Very Important
a. A Job that is interesting to do	1	2	3	4
b. A job where chances for advancement and promotion are good	1	2	3	4
c. A job that gives you an opportunity to be helpful to others	1	2	3	4
d. A job that provides a chance to earn a good deal of money	1	2	3	4
e. A job where you have the chance to be creative	1	2	3	4
f. A job where the skills you learn will not go out of date	1	2	3	4
g. A job that gives you a chance to make friends	1	2	3	4
h. A job that uses your skills and abilities - lets you do the things you can do best	1	2	3	4
i. A job that is worthwhile to society	1	2	3	4
j. A job where you get a chance to participate in decision making	1	2	3	4
k. A job that leaves you a lot of time for other things in your life	1	2	3	4
l. A job that leaves you mostly free of supervision by others	1	2	3	4
m. A job where you can learn new things, learn new skills	1	2	3	4
n. A job where you can be yourself	1	2	3	4
o. A job that most people look up to and respect	1	2	3	4

	Not Important	A Little Important	Pretty Important	Very Important
p. A job that permits contact with a lot of people.	1	2	3	4
q. A job with an easy pace that lets you work slowly.	1	2	3	4
r. A job where most problems are quite difficult and challenging.	1	2	3	4

B.4. Do you read as part of your work? 1. Yes 2. No

If your answer is yes, do you (circle ALL that apply):

a. Compare words to see if they are the same or different?
b. Look up unfamiliar words?
c. Read safety rules, instructions in the use and maintenance of equipment and tools?
d. Read job manuals?
e. Read technical journals, financial reports, or legal documents?

5. Do you use math as part of your work? 1. Yes 2. No

If your answer is yes, do you (circle ALL that apply):

a. Use addition, subtraction, multiplication, and division; make changes; perform simple measurements.
b. Compute or figure ratios, fractions, percents and decimals. Draw and interpret graphs.
c. Compute or figure discounts, markups, selling price?
d. Calculate surface area, volume, or weights. Calculate plane and solid figures. Solve simple equations (use algebra)?
e. Apply fractions, percentages, proportions, ratios, algebra, geometry to solve work problems?

6. Do you use writing as part of your work? 1. Yes 2. No

If your answer is yes, do you (circle ALL that apply):

a. Print or write simple sentences?
b. Print or write more than simple sentences, fill out forms?
c. Write reports?
d. Prepare business letters, summaries, reports using a given format?
e. Write manuals, editorials, or journals?

7. How much time do you spend with adults on the job and/or with your project? (Circle one choice)

a. All the time
b. More than half the time
c. Half the time
d. Less than half the time
e. Only a little time
f. No time at all

8. Does your work cause you stress and tension?

Yes _____ No _____

9. In this job, how much of your time involves working with your hands, using tools or machines? (For example: stocking shelves, caring for animals, growing crops, etc.) Circle ONE answer.

a. All of the time
b. More than half of the time
c. About half of the time
d. Less than half of the time
e. None of the time

10. Your job gives you a chance to learn a lot of new things?

Yes _____ No _____

11. You have too much work to do everything well?

Yes _____ No _____

12. Your job requires that you work very hard?

Yes _____ No _____

13. Sometimes you are unclear about what you have to do on your job?

Yes _____ No _____

14. Your job gives you a chance to be helpful to others?

Yes _____ No _____

15. Your job gives you a chance to practice what you have learned in school?

Yes _____ No _____

16. In this job, how much of your time involves dealing with people? (For example: selling to customers, or talking to your boss, etc.) Circle one answer.

a. All of the time
b. More than half of the time
c. About half of the time
d. Less than half of the time
e. None of the time

17. Does your work involve doing: (Circle ONE letter)

a. The same thing in the same way again and again?
b. The same kind of thing in a number of different ways?
c. A number of different kinds of things?

18. Does your job require you to solve problems?

Yes _____ No _____

C. 19. Who supervises your job and/or project? (Circle all that apply)

a. Employer or other person where I work
b. Teacher of agriculture
c. Parent
d. Other _____

20. If you circled a on number 19 above (employer or other person where I work), answer a through f concerning your supervision. (If not, go to question 21).

a. How closely does your supervisor supervise you? (circle one answer.

1. He/she decides what I do and how I do it
2. He/she decides what I do, but I decide how I do it
3. I have some freedom to decide what I do and how I do it
4. I am my own boss as long as I stay within the general policies of my employer

b. When your supervisor wants you to do something, what does he/she do? (circle one answer)

1. Usually just tells me what to do
2. Usually discusses it with me
3. Half the time tells me what to do, half the time discusses the work with me

c. How free do you feel to disagree with your supervisor? (circle one answer)

1. Very free
2. Somewhat free
3. Not very free
4. Not at all free

d. To do well on your job, how important is it that you do exactly what you are told? (circle one answer)

1. Extremely important
2. Very important
3. Fairly important
4. Not important

e. How often is your supervisor willing to listen to your problems and help find solutions? (circle one answer)

1. Almost always
2. Often
3. Sometimes
4. Seldom
5. Never

f. Does your supervisor treat you fairly?

1. Usually not
2. Sometimes
3. Most of the time
4. All of the time

D.21. How much do you agree or disagree with the following statements? (circle ONE choice for each line)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a. When a job turns out to be much harder than I was told it would be, I don't feel I have to do it perfectly.	1	2	3	4
b. I like the kind of work you can forget about after the day is over.	1	2	3	4
c. Very often I forget work I am supposed to do.	1	2	3	4
d. It's not very practical to try to decide what kind of job you want because your future job depends so much on other people.	1	2	3	4
e. There's no such thing as a company that cares about its employees.	1	2	3	4
f. I want to do my best in my job, even if this sometimes means working overtime.	1	2	3	4
g. Workers are entitled to "call in sick" when they don't feel like working.	1	2	3	4
h. Hard work really doesn't get you much of anything in this world.	1	2	3	4
i. Most people today are stuck in dead-end, go nowhere jobs.	1	2	3	4
j. I find it hard to stick to anything that takes a long time to do.	1	2	3	4
k. To me, work is nothing more than making a living.	1	2	3	4
l. People who take their work home with them probably don't have a very interesting home life.	1	2	3	4
m. Work gives a person a feeling of self-respect.	1	2	3	4
n. I hate to admit it, but I give up on my work when things go wrong.	1	2	3	4
o. If I had the chance, I'd go through life without ever working.	1	2	3	4

	Strongly Disagree	Disagree	Agree	Strongly Agree
p. I believe in working only as hard as I have to.	1	2	3	4
q. I expect my work to be a very central part of my life.	1	2	3	4

22. How strongly do you agree or disagree with each of the following statements? (circle ONE choice for each line)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a. A worker should feel some responsibility to do a decent job whether or not his/her supervisor is around.	1	2	3	4
b. If a person can get away with it, he/she should try to work just a little slower than the boss expects him/her to.	1	2	3	4
c. The best job that a worker can get is one which permits him/her to do almost nothing during the working day.	1	2	3	4
d. A person should feel a sense of pride in his/her work.	1	2	3	4
e. If a worker keeps busy on the job, the working day passes more quickly than if he/she were loafing.	1	2	3	4
f. A worker who does a sloppy job ought to feel a little ashamed of himself/herself.	1	2	3	4
g. My friends would not think much of me if I did not have a good job.	1	2	3	4
h. If people like their jobs, they should be satisfied with them and should not push for a promotion to another job.	1	2	3	4
i. A worker is better off if he/she is satisfied with a job and is not concerned about being promoted to another job.	1	2	3	4
j. A promotion to a higher level job usually means more worries and should be avoided for that reason.	1	2	3	4
k. The person who holds down a good job is the most respected person in the neighborhood.	1	2	3	4
l. Having a good job makes a person worthy of praise from friends and family.	1	2	3	4
m. Doing a good job should mean as much to a worker as a good paycheck.	1	2	3	4

Strongly Strongly

	Disagree	Disagree	Agree	Agree
n. A person should always be thinking about pulling himself/herself up in the world and should work hard with the hope of being promoted to a higher level job.	1	2	3	4
o. There is nothing as satisfying as doing the best job possible.	1	2	3	4
p. A person should choose the job which pays the most.	1	2	3	4
q. A person should take the job which offers the most overtime if the regular pay on the job is about the same.	1	2	3	4
r. A person should choose one job over another mostly because of higher wages.	1	2	3	4

23. If you are currently working or have worked in the past, please respond to the following questions. Since you've had a job, how often have you:

	Never	Seldom (1 or 2 times)	Ocassionally (3-5 times)	Frequently (5+ times)
a. Called in "sick" or with a phony excuse when you didn't want to go to work?	1	2	3	4
b. Put more hours on your time card than you actually worked?	1	2	3	4
c. Come to work "high" on drugs or alcohol or used drugs or alcohol at work?	1	2	3	4
d. Purposely short-changed a customer?	1	2	3	4
e. Lied to your employer about your age or something else in order to get or keep your job?	1	2	3	4
f. Taken money from the place you work.	1	2	3	4
g. Given goods or services for free or for less money than you should have to people who visit the place you work?	1	2	3	4
h. Taken things from the place where you work or from other people who work at the same place you do?	1	2	3	4
i. Purposely damaged or destroyed property belonging to your employer (including letting something at your job break down so you wouldn't have to work until it was fixed)?	1	2	3	4

E.24. Do you think that the things you are learning in your job or with your projects will be useful to you in your later life? (Circle one letter)

a. Extremely useful
b. Very useful
c. Somewhat useful
d. Not at all useful

25. In class discussions at school, do the students ever talk about their jobs or get ideas about how to do their jobs better?

Yes _____ No _____

26. Has your job or your projects affected your grades? (Circle ONE letter)

a. Yes, my grades have gotten lower
b. Yes, my grades have improved
c. No, my job has not affected by grades

27. Has your job influenced the courses you've take or other school activities? (Circle ALL that apply)

a. I've taken fewer courses to have more time to work.
b. I've taken fewer or easier courses to keep my grades up when I am working.
c. I've reduced my extracurricular activities (clubs, sports, band).
d. No, my job has not influenced my courses or school activities.

28. How much do you agree or disagree with the following statement in relation to your job or your project? (Circle ONE choice for each line)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a. What I have learned in school helps me do better on my job or project.	1	2	3	4
b. Because of my job or project, I have less time to do my homework.	1	2	3	4
c. My job or project has influenced my career choice.	1	2	3	4
d. My job or project provides information about things I am studying in school.	1	2	3	4
e. I contribute more to class discussions because of what I learn at work.	1	2	3	4
f. Because of my job or project, it's difficult to get to school on time.	1	2	3	4
g. My job or project has taught me the importance of getting a good education.	1	2	3	4
h. My job or project has made me recognize the subjects I really like and don't like.	1	2	3	4
i. Because of my job or project I come to school unprepared.	1	2	3	4
j. Because of my job or project I come to school tired.	1	2	3	4
k. I think about my job or project during class, so I miss what my teachers are saying.	1	2	3	4

		Strongly Disagree	Disagree	Agree	Strongly Agree
l.	School makes me realize how important it is to learn to do things well on my job or project.	1	2	3	4
m.	Working on my job or project makes me want to quit school as soon as possible.	1	2	3	4

F. 29. Are the challenges in this job or project (Circle one)

a. Mainly mental
b. Mainly physical
c. Both mental and physical
d. My job is not challenging

30. How TRUE about this job is each statement below? (Circle ONE choice for each line)

		Not at all True	A little True	Somewhat True	Very True
a.	This job or project gives me a chance to learn a lot of new things.	1	2	3	4
b.	I have too much work to do everything well.	1	2	3	4
c.	This job or project requires that I work very hard.	1	2	3	4
d.	This job or project uses my skills and abilities.	1	2	3	4
e.	Sometimes I am unclear about what I have to do on this job or project.	1	2	3	4
f.	This job or project gives me a chance to be helpful to others.	1	2	3	4
g.	This job or project gives me a chance to practice what I learned in school.	1	2	3	4

31. How much has your job or ownership projects helped you to develop the following abilities? (Circle ONE choice for each line)

		Not at all	A little	Some	A Great Deal
a.	Following directions	1	2	3	4
b.	Get along with people	1	2	3	4
c.	Be on time	1	2	3	4
d.	Take responsibility for your work.	1	2	3	4
e.	Manage your money	1	2	3	4
f.	Strive to do well	1	2	3	4
g.	Set priorities	1	2	3	4
h.	Communicate with others	1	2	3	4
i.	Learn how to learn	1	2	3	4
j.	Improve in basic skills (math, reading, writing)	1	2	3	4
k.	Make decisions	1	2	3	4

32. Does your job or project let you do the things you do best?

Yes _____ No _____

33. Does your job or project teach you new skills that will be useful in your future work?

Yes _____ No _____

APPENDIX B

LETTERS TO AGRICULTURAL EDUCATION TEACHERS

VIRGINIA TECH

Division of Vocational &
Technical Education

College of Education
Blacksburg, Virginia 24061

M E M O

To: Earl Reeves, David Shiflett, Bruce Caldwell, Ron Houser, Dennis Smith, Wayne Cupp, Eric Fitzgerald, Sherry Heishman, Jay Jarrett, and Phil Fravel. Also Albert Carter and Bobby Orrock.

From: Martin McMillion, 123 Lane Hall, Va Tech
Blacksburg, VA 24061 - 0254

Subject: Involvement in a Study of Effectiveness of Various Kinds of SAE Programs

Date: August 19, 1991

Austin Bull, my doctoral student, and I have been talking to some of you from time to time about a doctoral study he wants to do that will involve you and your students. We want to compare outcomes of placed students (Co-Op), home project students, and just working students. From what we know about your program, we are guessing that your department will have eight or more students placed in businesses (including farms) by October and plenty of home project students. The just working students (probably outside your department) are there but more difficult to identify. We will get some help from the principal or guidance to find a small representative group of these non-supervised students to fill out our forms.

The forms to be completed include work attitude questions, work history questions, background information, perception of their work experience and information about school experiences. The booklets will take about 30 minutes to complete. Austin is expecting you teachers to administer the booklets at this point in time. We will see that you have good directions. For the just working studnets, he might have to rely on the mail or come to the school himself.

This study is patterned after a larger study that I am helping to do in Roanoke County and in other states. We can't get any information on agriculture in Roanoke County. The only other school that has agriculture in the study is in Georgia. I feel lucky that Austin will make it possible, with your help, to have some of the same information for agriculture students in Virginia.

I just wanted to alert you to Austin's plans. Please use the business reply envelop to pencil a note to me if you will not have at least eight placed students or see other problems that we should know about.

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Agricultural Education
College of Agriculture and Life Sciences
Blacksburg, Virginia 24061-0254
(703) 231-6836 Fax: (703) 231-3292

MEMORANDUM

TO: All Teachers of Sophomore, Junior and Senior Regular Ag Students in Augusta, Rockingham and Shenandoah Counties

FROM: Austin Bull, Graduate Assistant, and Martin McMillion, Associate Professor, Agricultural Education, 121 Lane Hall, Va Tech, Blacksburg, VA 24061-0254 Tele 703-231-6836 or 8177

SUBJECT: A Study to Explore Work Attitudes of Ag Education Students

DATE: April 21, 1992

Some of you already know about the possibility of being involved in a study and others do not. At first we only wanted to go to schools having 8 or more ag co-op students. Now while we are still interested in getting data from all the co-op students we can, we want the information about work attitudes to be representative of all ag ed students in the upper three grades in Augusta, Rockingham and Shenandoah Counties. These counties are three of the top four counties in farm income in Virginia. Off farm agricultural business and the concentration of cooperative education is naturally there as well. For whatever reason, supervised agricultural experiences have been strong in the three counties and the area is felt to be the ideal location for the study.

Approval by the graduate committee to go ahead with data gathering came a littel later than expected; so, now we need to move quickly to get the data before school is out. The questionnaire about work attitudes and some possible factors related to work attitudes will take approximately 30 minutes to complete. Austin will come and administer the instrument to at least one class, and hopefully you will get the students in your other classes to complete the questionnaire so he can move on to the next school. In some of the larger, non-co-op classes a sample of students instead of all of them might be arranged.

To help in the scheduling and planning for the visits, please return the enclosed form in the business reply envelope provided. Knowing which period you have 10th through 12th grade ag students will help us work out the most efficient schedule. The number of students will also be useful in planning. We are not prepared to collect information from students you might have who cannot read the questionnaire.

This study is patterned after a national study that Dr. McMillion is involved with that has no agriculture students from Virginia and very few from other states. This is a good opportunity to get comparable data from agriculture students in Virginia. I hope you can help make it possible.

Austin will be contacting you by telephone about data collection, very likely before you have returned your class schedule. Hopefully you can relay some of the information in multiple teacher departments if you are the one he gets on the phone.

APPENDIX C

LETTER FROM THE DEPARTMENT OF EDUCATION

COMMONWEALTH OF VIRGINIA

COMMONWEALTH of VIRGINIA

DEPARTMENT OF EDUCATION
P.O. BOX 6-Q
RICHMOND 23216-2060

May 5, 1992

Austin Bull
College of Agriculture & Life Sciences
Virginia Tech
Lane Hall
Blacksburg, Virginia 24061-0254

Dear Austin:

I feel that you have selected an excellent topic for your study in agricultural education. A study of work habits and attitudes of students enrolled in agricultural education could be useful for our long range planning. We need research on attitudes and work habits to help us determine if we need to change our program. Work habits and attitudes are as important to success in employment as the knowledge and skills needed to perform given tasks.

Your study will be relevant to the new studies and reports that call for the teaching of all employability skills. Programs that cause the students to develop the proper work habits and attitudes will be the successful programs in the future and will help to ensure a competent workforce for our nation.

Please keep me informed on the progress of your study. Let me know if I can assist you in any way with this study.

Sincerely,

Glenn A. Anderson

Glenn A. Anderson
Associate Specialist
Agricultural Education

GAA/mfm

APPENDIX D

STATEMENTS AND NAMES OF INDIVIDUAL FACTORS FROM WORK ATTITUDES

WORK ATTITUDE FACTOR LOADINGS FOR AGRICULTURAL EDUCATION STUDENTS IN SELECTED COUNTIES IN VIRGINIA

Constructs and Questions

FACTOR ONE

CYNICISM ABOUT WORK

(15 items in order of factor loadings)

"How strongly [much] do you agree or disagree?"
Response Options: Strongly disagree = 1
Disagree = 2
Agree = 3
Strongly agree = 4

(1) I hate to admit it but I give up on my work when things on wrong. V92 **TGOWRONG**
(2) I find it hard to stick to anything that take a long time to do. V88 **LONTIME**
(3) If a person can get away with it he/she should try to work just a little slower than the boss expects him/her to. V97 **BOSSEXP**
(4) If I had the chance I'd go through life without even working. V93 **LIFEWK**
(5) The best job that a worker can get is one which permits him/her to do almost nothing during the working day. V98 **DNOTHING**
(6) Hardwork really doesn't get you much of anything in the world. V86 **MWORLD**
(7) To me, work is nothing more than making a living. V89 **MKLIVNG**
(8) People who take their work home with them probably don't have a very interesting home life. V90 **HOMLIFE**
(9) I believe in working only as hard as I have to. V94 **WHARDI**
(10) There is no such thing as a company that cares about its employees. V83 **CEMPLYEE**
(11) Workers are entitled to call in sick when they don't feel like working. V85 **CALSICK**
(12) Most people today are stuck in dead-end, go nowhere jobs. V87 **DEADEND**
(13) When a job turns out to be much harder than I was told it would be, I don't feel I have to do it perfectly. V79 **FPERFTLY**
(14) It's not very practical to try to decide what kind of job you want because your future depends so much on other people. V82 **FDEPPEOP**
(15) Very often I forget work I am supposed to do. V81 **WKSUPPOS**

FACTOR TWO

INTRINSIC MOTIVATION ABOUT WORK

(Six items in order of factor loadings.)

(1) A worker should feel some responsibility to do a decent job whether or not his/her supervisor is around. V96 **RESPDEC**
(2) A person should feel a sense of pride in his/her work. V99 **SENPRIDE**
(3) Work gives a person a feeling of self-respect. V91 **SREPECT**
(4) If a worker keeps busy on the job the working day passed more quickly than if he/she were loafing. V100 **QUICKLY**
(5) I want to do my best in my job even if this sometimes means working over time. V84 **OVERTIME**
(6) I expect my work to be a very central part of my life. V95 **CPMYLIFE**

FACTOR 3

EXTRINSIC MOTIVATION TO WORK

(Thirteen items in order of factor loadings.)

(1) The person who holds down a good job is the most respected person in the neighborhood. V106 **NBORHOOD**
(2) A person should take the job which offers the most overtime if the regular pay on the job is about the same. V112 **RPAYSAME**
(3) Having a good job makes a person worthy of praise from friends and family. V107 **PERENDS**
(4) My friends would not think much of me if I did not have a good job. V102 **NOBOODJB**
(5) A person should choose one job over another mostly because of higher wages. V113 **HGHERWAG**
(6) Doing a good job should mean as much to a worker as a good pay check. V108 **GPCHECK**
(7) A worker is better off if he/she is satisfied about being promoted to another job. V104 **BETTEROF**
(8) A person should chose the job which pays the most. V111 **PAYMOST**
(9) A promotion to a higher level job usually means more worries and should be avoided for that reason. V105 **HWORRIES**
(10) If people like their jobs, they should be satisfied with them and should not push for a promotion to another job. V103 **PPROMOTN**
(11) A worker who does a sloppy job ought to feel a little ashamed of himself/herself. V101 **ASHAMED**
(12) There is nothing as satisfying as doing the best job possible. V110 **BESTJOB**
(13) A person should always be thinking about pulling himself/herself up in the world and should work hard with the hope of being promoted to a higher level job V109 **WORLDWK**

APPENDIX E

STATEMENTS AND NAME OF INDIVIDUAL FACTOR FROM WORK BEHAVIORS

WORK BEHAVIOR FACTOR FOR
AGRICULTURE EDUCATION STUDENTS
IN SELECTED COUNTIES IN VIRGINIA

Constructs and Questions

FACTOR FOUR

WORK BEHAVIOR

(Nine items in order of factor loadings.)

"If you are currently working or have worked in the past, please respond to the following questions: Since you've have a job, how often have you?
Response Options: Never =1
Seldom = 2
Occasionally = 3
Frequently = 4

(1) Lied to your employer about your age or something else in order to get or keep your job? V118 **LIEDAGE**
(2) Purposely short-changed a customer? V117 **CUSTOMER**
(3) Taken money from the place you work. V119 **TMONEY**
(4) Purposely damaged or destroyed property belonging to your employer (including letting something at your job break down so you wouldn't have to work until it was fixed)? V122 **DPROPTY**
(5) Come to work "high" on drugs or alcohol or used drugs or alcohol at work? V116 **ALCOHOL**
(6) Taken things from the place where you work or from other people who work at the same place you do? V121 **TFRPEOP**
(7) Given goods or services for free or less money than you should have to people who visit the place you work? V120 **GSERVICE**
(8) Put more hours on your time card than you actually worked? V115 **HRSCARD**
(9) Called in "sick" or with a phony excuse when you didn't want to go to work? V114 **SICKPHON**

APPENDIX F

FACTOR ANALYSIS OF WORK ATTITUDE STATEMENT COMMUNALITY AND INDIVIDUAL FACTOR VARIABLE NUMBER

APPENDIX F

Factor Analysis of Work Attitude Statements

Variable	Communality
V79	.30853
V80	.14318
V81	.20049
V82	.24541
V83	.35298
V84	.49181
V85	.28722
V86	.40144
V87	.33379
V88	.44710
V89	.38801
V90	.39819
V91	.60326
V92	.47098
V93	.40522
V94	.39278
V95	.41712
V96	.64786
V97	.46074
V98	.42311
V99	.63000
V100	.5435
V101	.37032
V102	.42317
V103	.31954
V104	.33407
V105	.47565
V106	.43138
V107	.43895
V108	.53122
V109	.38464
V110	.49167
V111	.41624
V112	.41474
V113	.40691

Variable	Factor 1	Variable	Factor 2	Variable	Factor 3
V92	.6743	V96	.7964	V106	.6482
V88	.6569	V99	.7864	V122	.6170
V97	.6549	V91	.7727	V107	.6159
V93	.6334	V100	.7318	V102	.5866
V98	.6320	V84	.6970	V113	.5773
V86	.6219	V95	.6084	V108	.5723
V89	.6205			V111	.5677
V90	.5908			V104	.5669
V94	.5870			V105	.5539
V83	.5437			V103	.5190
V85	.5339			V101	.5164
V87	.5090			V110	.4830
V79	.5091			V109	.4635
V82	.4477				
V81	.4355				

APPENDIX G

FACTOR ANALYSIS OF WORK BEHAVIOR STATEMENT COMMUNALITY AND A FACTOR VARIABLE NUMBER

APPENDIX G

Factor Analysis of work Behavior Statements

Variable	Communality
V114	.26136
V115	.66084
V116	.71015
V117	.80811
V118	.80993
V119	.78419
V120	.66999
V121	.70042
V122	.75607

Variable	Factor 1
V118	-.899960
V117	-.898948
V119	-.885544
V122	-.869525
V116	-.842704
V121	-.836909
V120	-.818532
V115	-.812923
V114	-.511237

APPENDIX H

COMMONWEALTH OF VIRGINIA AGRICULTURAL EDUCATION TEACHERS WHO PARTICIPATED IN THE RESEARCH

APPENDIX H

COMMONWEALTH OF VIRGINIA AGRICULTURAL EDUCATION

TEACHERS WHO PARTICIPATED IN THE RESEARCH

COUNTY AND SCHOOL

AUGUSTA

1. Earl D. Reeves
   Bruce Caldwell
   Buffalo Gap High School
   Route 1,Box 124-A
   Swoope, VA 24479

2. David R. Shiflett
   Andy Seibel
   Fort Defiance High School
   P.O. Box 38
   Fort Defiance, VA 24437

3. Eugene Mcllwee
   Bruce Caldwell
   Riverheads High School
   Route 2, Box 351
   Staunton, VA 24401

4. R.N. Ramsey
   D.C. Houser
   Stuarts Draft High School
   Route 1, Box 114
   Stuarts Draft, VA 24477

5. W. Stuart Moffett
   Wilson Memorial High School
   Route 1, Box 260
   Fishersville, VA

ROCKINGHAM

6. D.M. Smith
   Broadway High School
   P.O.Box 376
   Broadway, VA 22812

7. W.W. Cupp
   Spotswood High School
   Route 1, Box 265
   Penn Laird, VA 22846

8. Eric Fitzgerald
C.C. Shiflet
Turner Ashby High School
800 N.Main Street
Bridgewater, VA 22846

SHENANDOAH

9. George Bowers
Sherry Heishman
Central High School
Susan Avenue
Woodstock, VA 22664

10. J.B. Jarrett
B.Z. Arey
Stonewall Jackson High School
P.O.Box 385
Mt. Jackson, VA 22842

11. R.B. Roller
Philip Fravel
Strasburg High School
Ram Avenue
Strasburg, VA 22657

VITA

Austin Moses Bull was born November 29, 1956 to Moses Korgar and Zealot Yealia Bull in Kakata, Gibi, Monsterrado County, Liberia/West Africa.

He received primary school training at the American Cooperative School, and finished secondary education at St. Patrick's High School in Monrovia, Liberia. He earned an associate degree at Bocconi University (Milano,Italy) in Agriculture (1974). He also received training in Banking and Economics at FinAfrica (Milano, Italy) in 1972. He obtained a B.S. degree in Economics from Saint Augustine's College, Raleigh, North Carolina. He received partial graduate studies work at the University of Missouri, Columbia and finished at North Carolina Agricultural & Technical State University with two Masters Degrees in Agricultural Education and Extension, and Agricultural Economics.

His professional work experience includes four years as a bank officer at Cassa Del Risparmio in Italy and Bank of Liberia in Monrovia. He worked 3 years as research assistant at North Carolina Agricultural & Technical State University in Greensboro and 2 years as research assistant at Virginia Polytechnic Institute & State University in Blacksburg.

He also worked 2 years as teacher and substitute teacher at Virginia Polytechnic Institute & State University and 2 years as substitute teacher at the North Carolina Agricultural & Technical State University in Greensboro. His professional and honorary affiliations include the American Vocational Association, American Association of Agricultural Education, Virginia Vocational Agricultural Teacher Association, National Vocational Agricultural Teacher's Association, Alpha Tau Alpha, Agricultural Education Honorary, Omicron Tau Theta, Professional Vocational Education Association, Alpha Kappa Mu, National Honor Society, Agricultural Education Society Co-Advisor, and American Vocational Education Research Association.

Finally, during his tenure as a research assistant, substitute teacher, and teacher at Virginia Polytechnic Institute and State University in the Department of Agricultural Education and the National Center for Research in Vocational Education, the requirements for the doctor of philosophy degree in Vocational and Technical Education were completed.