A COMPARATIVE DESCRIPTIVE ANALYSIS OF FIRST-YEAR AGRICULTURE SHORT COURSE AND DEGREE STUDENTS AT MICHIGAN STATE UNIVERSITY

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ABSTRACT

A COMPARATIVE DESCRIPTIVE ANALYSIS OF FIRST-YEAR AGRICULTURE SHORT COURSE AND DEGREE STUDENTS AT MICHIGAN STATE UNIVERSITY

by Duane L. Anderson

The purpose of this study was to make a comparative descriptive analysis of first-year College of Agriculture short course and degree students. Factors thought to be related to educational achievement and educational and vocational advisement were used to explore the differences which exist between the two types of students. It was thought that certain data concerning agriculture short course students would be helpful in making more accurate and realistic evaluations of their achievement potential, their occupational aspirations, and their academic and non-academic needs. Similar data is needed concerning agriculture degree students; however, the central focus of this study was upon the characteristics and needs of agriculture short course students.

The subjects studied were enrolled in the Michigan State University College of Agriculture during the fall of 1964. The short course population consisted of 176 first-year male students. The degree population consisted of 199 first-year male students. No female, transfer, or foreign students were included in the study.

Data were gathered on five psychological and twelve sociological factors. Personality traits were measured by the Sixteen Personality Factor Test. The Michigan State University Work Beliefs Check-list was employed to reveal work beliefs. The Rokeach Dogmatism Scale, Form E was used to quantify openness or closedness of belief

systems. Level of occupational aspiration was measured by the Occupational Aspiration Scale. Academic aptitude was determined by the College Qualification Test. Data concerning the sociological factors were gathered through the use of a biographical questionnaire developed by the investigator.

Significant differences at the .05 level or beyond were noted on the psychological factors indicating that, when compared to agriculture degree students, short course students are: (1) less emotionally mature or stable and more apt to be worried or suspicious, (2) less favorably inclined toward change within occupational roles and toward physical mobility from one occupational situation to another, (3) more dogmatic or closed minded in their belief systems, (4) lower in levels of occupational aspiration, and (5) lower in academic aptitude.

The following significant differences were noted on the sociological factors analyzed. When compared with agriculture degree students, short course students: (1) have fathers who have completed fewer years of school, (2) have fathers who are more often farmers or engaged in non-professional occupations, (3) have fathers with less income if they are not farmers, (4) are more often from farm homes, (5) have more often made definite occupational career decisions, (6) have received more parental encouragement to attend either a short course or a degree program rather than only a degree program, (7) have completed more high school vocational agriculture courses, (8) have had fewer job experiences outside of their field of agriculture study area, (9) more often prefer to work with machines instead of people.

Assuming that these factors are related to educational achievement and future vocational adjustment, it was concluded that agriculture short course students: (1) are more in need of counseling leading to greater emotional and social maturity than agriculture degree students, (2) need to be better acquainted with the necessity for changes within individual occupational roles and the advantages available to those who are physically mobile in their pursuit of work, (3) require different approaches to classroom instruction than agriculture degree students, (4) need more vocational counseling than the average student in order to raise their levels of occupational aspiration and to assure that their vocational career choice will be made on the basis of objective and realistic information, and (5) require different teaching material and methods, different evaluative processes, and more educational advisement than agriculture degree students. It was further concluded that (6) the educational aspirations of the sons are substantially affected by the attitudes and desires of the parents and the fathers in particular, and (7) that the home location of the agriculture short course and degree students is related to their educational aspirations.

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by

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CHAPTER I

THE PROBLEM

Introduction

Agricultural education, at the college level, was generally unsuccessful in the United States prior to the Morrill Federal Land-Grant Act of 1862. Several colleges attempted to meet the needs of an agrarian society during the first half of the nineteenth century, but they lacked ". . . any certain institutional foundations upon which to erect programs of agricultural and mechanical training as well as any deeply held respect for expertness" (90:248). Agricultural societies and proponents of popular technical education were responsible for the opening of a number of institutions which sought to promote scientific agriculture. Yale University established a professorship in agricultural chemistry and animal and vegetable physiology in 1846. Yale and other eastern colleges and universities were the major contributors to agricultural education prior to the land-grant college movement (90). The first agricultural college in the agrarian midwestern United States was chartered in Michigan in 1855 (59). It became Michigan's land-grant college and is now known as Michigan State University.

Technical training in agricultural and mechanical arts was not well received by farmers and mechanics. Most of them failed to see the need for college level training in their fields. Farmers felt that higher education stressed theory too often and practical applications

too seldom. Controversy over whether a college education should emphasize teaching students to think and reason or to develop vocational skills disrupted early attempts to incorporate agricultural and mechanical training into the curriculum. The problems precipitated by this divided opinion have not been uniformly resolved even today. Each institution has resolved the problem of balancing and blending liberal or general education with vocational or practical training in its own way.

Nineteenth century agricultural education suffered from four main dilemmas: inept teachers, vague educational objectives, extremely low enrollments, and little popular support among farmers. Teaching experience and practical insights into the needs of farmers eventually assuaged the first two and higher crop yields and farm income, as a direct result of scientific agriculture, helped increase the popular support. The problem of low enrollments, however, was more difficult to resolve. Curriculum changes which deleted algebra and classical studies in Latin and Greek helped increase enrollments, but perhaps the most effective effort was the almost complete abandonment of traditional admissions standards (90:260). This liberalized admission policy was as much a necessity as a matter of choice. Rural young men were not attending high school in sufficient numbers and college level education was beyond the reach of most rural school graduates until admission standards were lowered. Although enrollments increased, the quality of college course work in agriculture deteriorated correspondingly.

In 1878 Ohio State College attempted to hold winter short courses for farmers in an effort to gain popular support by meeting the needs

of nearby farmers. The courses were intended to be practical and short enough to avoid conflict with farm work. Only seven men sought enrollment. The University of Wisconsin attempted a similar program in 1885, and Michigan Agricultural College began a short course program in 1894. The Michigan Agricultural College program has continued to the present. Madison Kuhn, Michigan State historian, credits the innovation of short courses as being one of the most important factors in garnering allegiance and support for the agricultural college among Michigan farmers (59:178). This loyalty and support seems to be due, at least in part, to the fact that most short course graduates return to their home communities and farms, whereas the majority of the four-year graduates do not.

As short course enrollments at Michigan Agricultural College grew between 1894 and the first World War, it was feared that students would be attracted from the regular college programs to short course programs. This fear proved unfounded as enrollments increased in both programs. In fact, short courses offered a partial solution to the problem of lower than desirable standards of excellence in the regular College of Agriculture programs. Parallel programs permitted different admissions standards without alienating proponents of either the liberal education philosophy or the practical and vocational philosophy.

Courses leading to various types of degrees in agriculture have been taught at Michigan State University since 1855. Non-degree short courses in agriculture have been taught since 1894. They have covered practically every phase of agricultural endeavor. Until 1947, most short courses were less than two weeks in length. In 1947 the Short Course Department reorganized into two distinct departments. The

Continuing Education Department now supervises the administration of courses less than two weeks in duration, and the revised Short Course Department assumes responsibility for courses extending eight weeks or longer.

The Short Course Department programs, since 1947, have been mostly two-year programs in General Agriculture and Agricultural Industries which lead to a certificate of completion rather than a degree. Both the Short Course certificate programs and the College of Agriculture degree programs are administered by the College of Agriculture.

The Short Course Director, however, administers the department's programs with a great deal of autonomy. He functions almost as a dean, though he is subordinate to the assistant dean for resident instruction.

The technical agriculture courses in each of the two programs are taught by the same faculty personnel. Short Course and degree students are not enrolled in the same classes, however. Each program has its own separate classes. The class separation has been maintained largely because of the belief that students entering the two programs differ in academic ability, personality needs, and vocational goals in later life which make it inadvisable to merge even portions of the course requirements for the two programs. Varied opinions have existed for many years regarding the sociological and psychological differences between agriculture degree and short course students. No research which clearly delineates the two groups has been conducted up to this time.

Need for the Study

Changes in agriculture since 1855 have resulted in changes in curricula and admissions standards for both the College of Agriculture degree students and the short course students at Michigan State University. Degree students are admitted by the University Admissions Office and tested on the same characteristics as all first-year students. Short course students are admitted by the Short Course Department and are administered a different battery of tests. Whereas data regarding the abilities and aptitudes of the agriculture degree students as compared to other students at the University are available through the testing program administered by the Counseling Center, no such data is available for comparing short course students with agriculture degree students. A comparative descriptive study utilizing identical instrumentation is needed to identify similarities and differences between the two types of students. This research is based on the assumption that significant differences do exist.

Importance of the Study

The future of young men in agriculture depends upon their own abilities and aspirations as well as the opportunities that exist within the field. Educational training to maximize the students' personal and professional growth and development is extremely important. However, adequate information for initiating and modifying effective agricultural training programs is often lacking.

The planning of course content depends, at least partially, upon scientifically reliable data about students. Levels of difficulty in course materials, time sequences and duration, and course

objectives are influenced by the abilities, aspirations, and needs of the students. At present very few data exist about short course students, upon which decisions regarding these matters can accurately be made. Some information does exist for degree students.

Student personnel services, such as counseling and guidance, are influenced by additional considerations. Learning experiences which can correct personal deficiencies acquired in previous environments should be made available in a program of study and co-curricular activities. The influence of home and family, previous education, and certain personality characteristics should be investigated before planning corrective activities for individual students. The student personnel services and academic offerings available to short course students in agriculture are often patterned after the services and requisites of the degree students in agriculture without regard to student differences. A study of selected sociological and psychological characteristics of agriculture degree students and short course students should permit more accurate and realistic planning of student personnel services and academic offerings for both groups.

Thus, there is considerable need for a study of the sociological and psychological characteristics of agricultural degree and short course students in order to ascertain specifically what differences may exist. The data from which comparisons will be drawn in this study include some of the psychological and sociological factors thought to be related to educational achievement. It is assumed that an intensive study of such data will be useful in planning future educational and vocational advisement programs for both agriculture degree students and short course students.

Purpose of the Study

The purpose of this study is to make a comparative descriptive study of two types of College of Agriculture students. The investigation seeks data which will accurately and clearly identify some of the psychological and sociological differences that may exist between first-year degree students and first-year short course students. Only those factors thought to be related to educational achievement and educational and vocational advisement are examined. Such data will permit more accurate evaluations of the relative potential abilities, aspirations, and needs of the two groups than are now possible.

This investigation is primarily concerned with discovering information about agriculture short course students that will be of value to faculty members offering them educational and vocational advisement. There are also implications for the College of Agriculture in planning educational programs and student personnel services to meet the needs of degree students. Although the latter implications arise logically from a comprehensive study of students and their needs, they are of secondary importance for this study.

Degree students in the College of Agriculture are regularly compared to other university students through standard orientation tests, grades in various classes, and academic progress standards. All university freshmen are uniformly governed by one set of student personnel policies and academic performance requisites. Short course students at Michigan State University are not compared with other students in the same ways. They are tested separately, attend separate classes and are evaluated separately in their academic progress.

Although university-wide policies govern short course students generally, the short course director may put his own interpretation on the policies. In many cases the regulations governing short course students are established on the basis of current practices for regular college students. Although both types of students are described herein, the major emphasis of this research will be directed toward a study of the characteristics of agriculture short course students when compared to agriculture degree students.

Statement of the Problem

The problem investigated in this research is the differences that exist between the first-year degree and first-year short course students in the College of Agriculture. The factors to be examined include selected psychological and sociological characteristics thought to be related to educational achievement.

The pertinent literature reviewed in Chapter II does not deal directly with the subjects studied in this investigation. The studies indicate, however, that the factors used for comparison in this study are related to educational achievement and educational and vocational advisement. The data reviewed deals mostly with subjects similar to those in this investigation, their home environments, aspirations, aptitudes, personalities, and career opportunities and interests. Although it is possible to draw on previous research to select fruitful areas to examine, the design of this study evolved from unanswered questions which do not lend themselves to examination through theory based hypothesis. This study is essentially exploratory. Comparison of the two populations on the basis of the selected factors may result in the observation of differences; but at present no scientific

evidence concerning these differences is available for agriculture students.

The null hypothesis of no difference between groups is used as the basis for the statistical analysis of the data. The level of significance for testing the null hypothesis was set at P = .05, prior to the data gathering process. The selection of a level of significance is an arbitrary practice where the risks of erroneous conclusions are carefully considered. The possibility of accepting the null hypothesis and overlooking a real difference is weighed against rejecting the null hypothesis when only chance differences occur. The probability that differences noted in this study may be utilized in making far reaching changes in academic programs and personnel services for future students requires minimum precision at the .05 level of significance.

Factors to be Examined

The factors to be studied as criteria for comparison are classified into two categories: (a) psychological factors, and (b) sociological factors.

The psychological factors which are thought to be related to educational achievement and educational and vocational advisement include: (1) personality traits, (2) beliefs and attitudes relating to work, (3) dogmatism, (4) occupational aspiration, and (5) academic aptitude.

The sociological factors which are thought to be related to educational achievement and educational and vocational advisement include: (1) father's education, (2) mother's education, (3) father's

occupation, (4) mother's occupation, (5) father's income, (6) number of older brothers, (7) home location, (8) occupational choice crystallization, (9) parental encouragement to attend either college or short course, (10) years of vocational agriculture courses completed in high school, (11) the student's job experiences, outside of his major area of study, and (12) student preference for working with ideas, machines, animals, people, or plants.

The instruments employed by the investigator to measure and record all factors are described in Chapter III.

Delimitations of the Study

This study is concerned with only two populations, College of Agriculture first-year degree students and first-year short course students who were enrolled at Michigan State University during the fall term of 1964. There were 213 students enrolled as first-term freshmen in the College of Agriculture and 230 students enrolled as first-term students in the Short Course Department. Female, transfer, and foreign students and all students with any previous college or post high school training experience were eliminated from the study. The remaining populations consisted of 199 degree students and 176 short course students.

The College of Agriculture degree students had selected one of eleven major areas within the College of Agriculture. The short course students were enrolled in the Young Farmer program (93), the Farm Equipment Sales and Service program (21), the Nursery and Landscaping program (26), the Commercial Floriculture program (14), and the Elevator and Farm Supply program (22).

The study is limited to examination of the characteristics of students in the two populations during the initial stages of their college experiences. No attempt will be made to ascertain if the subjects remain in the two programs.

Limitations of the Study

Certain limitations are inherent in the research instruments used in this study. A comprehensive discussion of the instruments and their respective validity and reliability coefficients is undertaken in Chapter III. The measurement of psychological factors such as mental aptitude and personality is widely debated and a consensus is noticeably lacking among both educators and psychologists. Philosophical consideration regarding the structure or content of instruments attempting to measure abstract concepts are varied.

> For example, the personality theorist thinks in terms of the organization of id, ego, and superego, the self, personality syndromes and profiles, trait clusters, and personality types; the student of ideology can describe such configurations as fascism, . . . and conservatism; cognitive theorists talk in terms of such concepts as cognitive styles, . . . and sign Gestalten. . . . During the course of our investigation we have come more and more to view a given personality as an organization of beliefs or expectancies having a definable and measurable structure (89:6).

There is no reason to believe that any students were overtly dishonest in replying to the questionnaire, checklists, or testing instruments used. However, the possibility of this occurring is always a limiting factor in studies of this type.

This investigation attempts to make statistical comparisons of the two groups of students. There is no basis, however, for judging whether any of the differences noted are good or bad. Evidence that significant differences exist must suffice as justification for consideration of the conclusions reached in Chapter V.

Definition of Terms

The College of Agriculture degree students are all the first-year male students enrolled at Michigan State University in the fall term of 1964 who indicated they would undertake a four-year degree program within the College of Agriculture. Female, transfer, and foreign students and students with post high school training of any type are not included in this population.

The College of Agriculture short course students are all the first-year male students enrolled at Michigan State University in the fall term of 1964 who indicated they would undertake a two-year certificate program in agriculture within the Short Course Department of the College of Agriculture. Female, transfer, and foreign students and students with post high school training of any type are not included in this population.

The General Agriculture Short Course includes four eight-week terms over a two year period. Two terms are offered during succeeding fall and winter academic terms.

The four types of Agricultural Industries Short Courses include four quarter terms of classroom work and either two or four quarter terms of on-the-job placement training. These courses are the (1) Farm Equipment Sales and Services, (2) Nursery and Landscaping Management, (3) Commercial Floriculture, and (4) Elevator and Farm Supply.

Educational achievement is interpreted here as the progress noted in an individual's efforts to seek and obtain formal education at some level.

The term student personnel services refers to personal counseling, academic and career advisement, and faculty supervised activities

which are available to students. Such services as admissions, orientation programs, health services, religious counseling, housing arrangements, and financial aids and scholarships are not included in the general term, student personnel services, in this study.

Academic aptitude, as used herein, refers to the scores the students achieved on the College Qualification Test, otherwise referred to as the CQT.

Personality traits used to describe students' personalities are those enumerated and measured by the Sixteen Personality Factor Test.

Occupational aspiration is measured by the Occupational Aspiration Scale. Scores on the Scale are thought to be indicative of the relative level of occupational aspiration held by the student.

Dogmatism is that characteristic measured by the Rokeach Dogmatism Scale, Form E which distinguishes between persons with open or closed belief systems.

Work beliefs are measured by the Michigan State University Work Beliefs Check-list. Attitudes and beliefs related to the value attached to work are recorded in six categories of beliefs.

Summary

This study is an attempt to compare agricultural students who are interested in pursuing either of two different educational programs which train them for careers in agriculture. One group consists of 199, first-year, college degree students, and the other consists of 176, first-year, short course students. Both groups were enrolled at Michigan State University for their first post high school training

during the fall of 1964. These students were measured on selected psychological and sociological factors related to educational achievement and educational and vocational advisement in order to ascertain whether significant differences exist between the two types of students.

At present the educational programs for such students are entirely separate. The separation exists because it is thought that significant differences exist between degree and short course students which make it inadvisable to merge even portions of their course work. This study is designed to determine specifically what differences, if any, do exist. It was thought that analysis of the data would permit a more accurate and realistic appraisal of curriculum offerings and student personnel services provided for such students.

Previous studies dealing with the selected factors utilized as comparative indices and subjects similar to those examined in this study are reviewed in Chapter II. The procedures and methodology used are described in detail in Chapter III. Analyses of the psychological and sociological data are found in Chapter IV. The fifth and final chapter contains conclusions drawn from the study along with recommendations for further research in this field.

CHAPTER II

REVIEW OF THE LITERATURE AND RELATED STUDIES

Overview

While research related directly to agriculturally oriented college or short course students is extremely scarce, college students, in general, have been examined in a multitude of ways. They have been studied within such groups as the gifted, retarded, and underprivileged. They have been individually analyzed on general characteristics such as physical condition, values, academic abilities, attitudes, and other assorted traits. However, the two groups examined in this study, agriculture degree and short course students, have been neglected. The investigator was able to locate only one study which dealt specifically with either of the two groups. A limited amount of research is available concerning agricultural short course programs, rural youth, and college students from rural backgrounds. Most of this research, although indirectly related, is too broad in scope to permit valid generalizations to the subjects of this study.

This review of related research is primarily concerned with studies which have dealt with subjects similar to those examined in this study. Some studies are only indirectly related to the subjects of this thesis. Nevertheless, it seemed more efficacious to discuss similar subjects than to examine research dealing with the multiple criteria employed in this study as they have been employed with other types of subjects.

The relationship between educational achievement and a variety of psychological and sociological factors is well documented in the literature. The array of studies dealing with the criteria related to academic success is reviewed in several central sources; therefore, this review will deal primarily with the more current literature in the field.

This chapter is divided into four sections. The first section deals with studies directly related to the subjects of this thesis. The second area reviews current literature concerning short course programs. Area three studies are related to rural youth, and area four gives a brief review of research on the criteria used in this investigation.

College of Agriculture Students and Rural Youth Examined in Previous Studies

One study, by Freeh (32), used first-year students in the College of Agriculture as a portion of the sample. Answers to two questions were sought. Who is enrolling in agricultural curricula? and why are they enrolling in agricultural curricula? College freshmen from rural and urban homes enrolled in agricultural curricula and freshmen exclusively from farm homes enrolled in other than agricultural curricula were studied. A total of 339 first-term male students at Michigan State University in the fall of 1961 were queried through the use of questionnaires. Emphasis was given to an examination of students' experience prior to entering college, their attitudes toward agriculture, their exposure to information about college curricula and careers, and the sources of influence associated with their college curricula choice.

Freeh found significant differences between farm youth enrolled in agricultural curricula and farm youth enrolled in other than agricultural curricula and non-farm youth enrolled in agricultural curricula. Farm youth enrolled in agricultural curricula more often reported: (a) their parents and guardians were full time farmers; (b) the adults they admired most were in agricultural occupations; (c) their closest friends were aspiring to agricultural careers; (d) they had studied vocational agriculture in high school; (e) they had participated in FFA and 4-H; (f) they had a good understanding of career opportunities in agriculture; (g) their first career choice was farming; (h) they had visited the campus for Future Farmers of America and 4-H activities; (i) they reported greater access to an extensive study of agricultural career publications; and (j) they were influenced most in their choice of curricula by their parents and vocational agriculture teachers as opposed to other adults and parents.

Students enrolled in agricultural curricula were divided approximately equally as to urban or rural home backgrounds. Attitudes regarding agriculture were not significantly different among students enrolled in agriculture. However, farm youth who were not enrolled in agriculture exhibited less favorable attitudes toward agriculture.

This study, while differentiating between agriculture freshmen from varied backgrounds in terms of past experiences, does not contribute greatly to a knowledge of abilities, attitudes, or traits which are considered in educational planning. The question of why students are enrolling in agricultural curricula, one of the questions pursued in Freeh's study, must be inferentially resolved on the basis of influences recalled by the students rather than evidence of student interest and ability or resources at home.

Short Course Programs

Two studies describing the type and extent of short course programs have been conducted by Larson (60) and Freeh and Henneman (33). Larson found thirty land-grant universities in the United States and thirteen schools in Canada which offered short course programs in 1954. Fourteen additional land-grant colleges indicated they intended to initiate similar programs. Freeh and Henneman found forty-six of the sixty-seven land-grant institutions offer some type of non-degree or short course program. Among non-land-grant institutions, seventeen colleges or universities, seventy-three junior colleges, and eleven technical or vocational institutes offer non-degree programs in agriculture. The programs and courses vary from home economics for women to specialized types of farming for men students. Over 300 types of short-term conferences were offered by the land-grant institutions. Twenty-seven land-grant institutions reported plans to expand their programs in the future.

Typical short course programs have lower entrance standards than degree programs, a high school diploma being the most common admission criteria. Short course students spend more time per week in the classroom and laboratory than the degree students. The courses are usually taught by regular faculty members and are designed more for application to problems than for theoretical analysis.

There are no known comprehensive studies of agriculture short course students. In 1948, a brief study was conducted by the Michigan State University Short Course Department as a part of a national workshop on short courses (68). It was intended to reveal what personal accomplishments and contributions to society short course graduates

have made. Replies from 2,000 graduates indicated they were more active in governmental office holding, farm organization membership and other community activities than the control group. However, no indication was given as to the number in the original sample or the makeup of the control group.

Rural Youth and Related Studies

A limited amount of research is available on rural youth in general. Three characteristics of this research limit the advisability of generalizations related to differences between farm and non-farm youth, between rural and urban youth or between agriculturally oriented students from predominantly rural backgrounds. First, sample size and selection methods vary considerably. Second, instrumentation varies greatly and the reliability and validity of the instruments are not always indicated in the research reports. Third, none have used beginning agriculture college students from rural backgrounds. Conclusions concerning these students are reached by extracting data from larger studies where delimitations of categorical parameters are often vague. Furthermore, the research data available usually report on only a few aspects of the entire range of factors necessary to establish whether significant differences exist among rural boys who seek education beyond high school. Data on female rural youth, although not vital to this study, are almost non-existent.

Population statistics for the state of Michigan by Beegle and Halsted (70) reveal that while the state's population is increasing, the farm population is decreasing. Because the number of farms in Michigan is decreasing and the number of farm operators who work 100 days or more a year off the farm is increasing, indicating a decline

in farming as an occupation, these census figures are relevant to this study. Several other studies by the North Central Regional Experiment Stations (104) and the Cooperative Extension Service (71) (72) corroborate the decline in farms and the trend toward increasing part-time non-agricultural employment by farmers.

The Michigan State University Agricultural Experiment Station has sponsored several studies of rural families and rural youth. Some of these studies have been directed toward understanding the processes of choosing careers and the aspirations of rural people.

According to studies by Bowles and Teauber (11) and Manderscheid (66), there is abundant evidence that the rural-farm community cannot supply job opportunities for all the young people reared there. Bowles and Teauber reported that 50 per cent of the male farm youth intend to stay within the community where they were raised. Only 23 per cent of this group plan on attending college. About 10 per cent indicated that they were seriously interested in farming. The disparity in the figures indicates a number of undecided youth and an apparent disregard for the limited opportunity for unskilled labor in a small town.

Manderscheid (66) has calculated that, on the basis of retirement and replacement rates in 1959, approximately one farm boy in sixteen will have an opportunity to farm. Even if all farmers retired at age sixty-five, only one in ten farm boys would have the opportunity to farm. These figures are based on 1959 census figures.

Burchinal, Haller, and Taves (15), in a pamphlet entitled Career Choices of Rural Youth in a Changing Society, stress that rural youth are being forced to move into urban areas and compete

with urban people for jobs. Rural youth are at a disadvantage in this competition because of their skills, training, value orientations, and personality characteristics. They do not have the motivations to acquire information about non-farm related jobs and usually do not aspire to a college education. The authors point out a need for special education programs for rural youth and a need to educate them for mobility.

Studies by Haller (46) and by Haller and Wolff (42) on data taken from 442 seventeen-year-old farm boys in Lenawee County, Michigan, in 1957, have attempted to explain factors affecting occupational and aspirational processes. Haller found that farm boys are limited in their choices of occupations by several factors. The mere fact that a farm boy commits himself to farming apparently negates almost all consideration of attending college. A later study by Haller and Wolff, an elaboration on the same data, demonstrates that personality orientations are related to residence. Since personality differences exist between plan-to-farm farm boys and non-plan-to-farm farm boys, the influence of situational factors within the environment is very important. The home environment, the influence of the parents, the individual's concept of his own opportunities, and the opinions of other people all contribute to the value orientation of rural youth. One deduction of Haller and Wolff is that the different socialization processes, to which rural youth and urban youth are exposed influence personality, level of aspiration, and ultimately levels of achievement.

Neilson (79) reported that farm family goals, expressed by farmers in a seven-township study in Michigan in 1959, were about evenly divided between "establishing a comfortable living" and "providing for family and children." Forty-seven percent expressed the

opinion that providing their children with a good education should be the main family goal.

Rural parents place less value on education than do urban parents, according to Rogers (87). Among covert expressions leading to this conclusion is the desire of rural parents to retain the sons of the family as workers on the farm.

A combination of factors involved in the socialization of rural youth were cited by Burchinal (16) to explain depressed levels of educational and occupational aspirations. Farm parents tend to underestimate the value of higher education, lack experience in discussing educational and occupational plans, and provide less encouragement for boys planning to farm to go to college.

While Bentley and Hemp (7) list parents and vocational agriculture teachers as being very important sources of influence on a sample of Purdue University and Illinois University agriculture students, Sewell, Haller, and Straus (96) claim that existing evidence of direct influence by the family and home environment on the level of a child's academic achievement is weak. They discount much of the present data as being unreliable because of poor sampling procedures and uncontrolled variables in past studies.

Even though faith in education as a means to upward social mobility is widely shared in the United States, some rural people have unresolved questions concerning education. Brookover and Gottlieb (12:60) state that:

> Still other groups are ambivalent in regard to education. In some rural communities farm people may wish to keep the boys and girls on the farm, but at the same time they hope to have their children get ahead through education. Out of this conflict of desires they may provide the opportunity for the youth to go to high school and college, only to be

> disturbed when the educated son or daughter does not return to the rural community. The decreasing opportunities for farm youth to find employment on the farm obviously complicate the situation.

Haller, et al. (44) pointed out in a bulletin entitled Rural Youth Need Help in Choosing Occupations that the level of occupation a person enters is related to his earlier aspiration level. Rural youth who plan to farm do not usually have high levels of occupational aspiration and are likely to end up in lower level occupations if they do not have opportunities to farm. Haller concludes that the prospects of rural youth are not as bright as those for urban youth. This conclusion is based on several factors such as their generally lower level of education, their lower aspirations, and the fact that they are less well prepared to compete for non-farm jobs.

Haller (40) points out, in an address to the 1963 National Conference on Problems of Rural Youth in a Changing Environment, that data on boys who stay in farming is scarce. There are few data on the psychological and sociological factors affecting the choice to farm or not to farm. Haller suggests that some plans to influence farm youth should be initiated immediately if a number of them are to be realistically counseled. Possible plans include improving rural schools, in-school guidance programs to raise levels of educational and occupational aspirations, or programs reducing the effects of planning to farm.

A 1959 study of Iowa farm boys by Kaldor, et al. (56) revealed that 38 per cent of 870 farm boys planned to farm. There will not be room for that great a number to find opportunities to farm according to other data. In the Iowa study, as in other studies, the per cent of boys planning to farm who intend to take college work was very

small, only 17 per cent. Also, the parents of boys who plan to farm had lower educational aspirations for their sons. This is in accord with previous studies in this regard. Farm boys do not enter farming purely because of income considerations. There appears to be some relationship between the income level of farming and the number of boys deciding to enter farming, but this is not their only reason. Since there is also a high correlation between educational achievement and economic success, it is not readily understandable why farm youth negate the opportunities for improved success and status through education.

Rural schools, although steadily declining in number because of consolidations, are considered an integral and inseparable part of rural life by many (20). Whether they are adequate to meet educational requirements for students desiring higher education is a persistent and unsatisfactorily answered question. Several studies (15) (16) (21) (41) (51) (74) show that fewer rural students continue in college after high school than urban students. Hollinshead (51) revealed that the two groups least likely to send their children to college were the urban working class and the small scale farmers. Present research strongly supports the generalization that farm and rural non-farm youth have lower levels of educational aspiration than urban youth (15). The educational plans of children appear to be related to the educational aspirations of parents for their children. Two studies by Haller (43) and Kaldor (56) reveal that rural youth with aspirations to high prestige non-farm occupations generally felt that their parents had also aspired to these occupations for them and had encouraged them to pursue training to that end.

Three studies by Strauss (100), Sewell (96), and Edlefson and Crowe (26) may possibly account for the relatively fewer rural youth who do aspire to higher prestige non-farm occupations. Strauss found that farm boys had more work assigned to them at home, had less outside job experience and were less financially responsible for their own needs. In a summary of this research before a national sociological convention Strauss (99) postulated that lower aspirations among farm boys may be due to the limited sources of occupational information they have available. Occupational information acquired and transmitted by farm parents as a result of their own experience in the non-farm occupational world is usually very limited.

Sewell found educational aspiration directly related to the socio-economic status level of the family. Edlefson and Crowe point out that work experience was the paramount reason given by youth for occupational choice.

Psychological and Sociological Factors in Relation to Educational Achievement

Several criterion have been referred to in previously mentioned studies. Aspiration among rural or farm youth has been mentioned in fourteen studies (15) (16) (21) (26) (41) (43) (46) (47) (74) (76) (96) (99) (101) (109). The relationship between educational achievement and educational or occupational aspiration is implied by the definition of the terms. Some further clarification of what "Level of Aspiration" actually is and what appropriate means have been developed to quantify it are reviewed elsewhere (35) (36) (39) (47) (52) (76) (94) (101).

In a study including rural college freshman as part of the sample, Lehmann (69) reported that of all freshman at Michigan State University in the fall term of 1958, those from rural homes scored lower on the College Qualification Test than those from urban homes. The College Qualification Test is used as a predictor of academic achievement at Michigan State University. However, he also reported no significant differences in critical thinking ability between urban and rural students. Additionally, males who lived most of their lives on a farm were markedly more stereotypic and dogmatic, were the poorest readers, and measured lowest on the College Qualification Test.

Terman's (103) study indicated that urban-reared high school children have significantly higher intelligence quotients than rural-reared high school children. Other studies show that rural boys who plan to farm have lower intelligence scores than those who do not (82) and agriculture students in college have lower than average intelligence scores when compared with other college students (61).

The existence of some type of relationship between personality traits and academic success is widely accepted. Paradoxically, however, the specific trait or traits and their effects quantitatively or qualitatively on academic performance are as yet poorly defined. Bereiter and Freedman (8:579) in summarizing the enigma conclude, "Personality measurement at the present time is at a stage of development where it is considerably easier to develop reliable measuring devices than it is to find out what they measure." It is predictably difficult to isolate personality traits and to identify them adequately for any semblance of universal understanding. Evaluation of a trait or a syndrome of traits is similarly difficult because the traits

rewarded in one segment of society may not be valued in another (73). Furthermore, no one is certain which traits are the best or worst possible traits for any one particular vocational field. The area of personality research needs further clarification of its nomenclature. Efforts to measure and investigate objectively basic personality differences between students "... have succeeded in establishing only that there exists what for the moment might be called differences in 'adequacy of psychological adjustment.'" (8:571).

The Michigan study by Haller and Wolff (42) made of rural high school students with high non-farm occupational aspiration levels revealed several specific personality characteristics. These students tended to have more stable emotional characteristics, more confidence in their social abilities to work and mix with others, a greater tendency to achieve success in activities, and more self-confidence in expressing their ideas and feelings. They also expressed a readiness to move from familiar surroundings to take advantage of new opportunities, positive attitudes toward changes in their patterns of living, and belief in self determination of events rather than determination beyond their own control. Rural boys with low non-farm occupational aspirations tended to have the opposite characteristics and attitudes.

Farquhar has recently reviewed motivational factors and included personality, aspiration, and biographical factors as influences related to academic success (28).

The concept of attitude is closely related to personality and sometimes included within the general rubric of personality. Rokeach (88:395) opposes this common view when he says,

> The major conclusions to which we have drawn attention thus far are those that emerge from our findings about the nature of all belief systems, regardless of the degree to which they are open or closed. They are independent of personality.

Rokeach adds that highly dogmatic people would have difficulty synthesizing their beliefs into a new system. Regardless of whether attitudes are considered a facet of personality or an entity in themselves, the way a person believes, whatever he believes, affects his ability to learn new concepts. Di Vesta (24) and Neel (78) have found that persons with a high degree of dogmatism are hindered in their efforts to learn certain types of things. The highly dogmatic or very authoritarian person would have difficulty in learning ambiguous or unstructured material or tasks and would find philosophical humanitarian ideas difficult to assimilate, according to these studies.

Frumkin (34) found that high dogmatism scores as measured on the Rokeach Dogmatism Scale, Form E were related to lower socio-economic groups. Jacob (53) reported that, in general, a college education has a more liberalizing influence on highly dogmatic students than on less dogmatic students. The question of whether one can consider or accept new ideas and beliefs is crucial to learning situations and research presently available indicates the more dogmatic students would be at a disadvantage.

Sociological factors related to academic success and occupational aspiration are documented in numerous sociology and education sources. The influence of the home environment upon academic achievement of the child is unquestioned. Only the precise extent and direction of influence upon specific individuals is in doubt. Research has shown socio-economic level to be related in varying degrees to achievement, intelligence, and aspiration or motivation (2) (48) (64) (81) (96).

Family influences have been reported in several studies (15) (30) (51) (56) (80) (81) (97). In section three of this review mention was made of familial influence in connection with educational and vocational aspiration. The tendency of rural youth to be given relatively more responsibility in maintaining the family farm enterprise than for urban youth to be involved in earning the basic family income was noted by Strauss (100). There appears to be a greater tendency for farm youth and children whose fathers are from lower status level occupations to follow their parents into similar levels of employment (9) (91).

The influence of the parents in determining the vocational development of their children may depend as much on what they fail to provide as on what they provide. Strauss reports that farm and rural youth are at a disadvantage in occupational planning because their parents lack occupational information. Youth seek guidance in determining vocational goals and where parents are unable to assist, students are found to have had a limited range of choices (99).

Vocational development theory as espoused by leading theorists gives credence to the concept of a home and family influence on career selection (15) (37) (86) (102). Roe has even attempted to predict career choice on the basis of information about a subject's home and family. Predictability has thus far been unsuccessful.

Intelligence alone does not seem to answer all the questions related to academic success or educational achievement. Factors such as personality, aspiration or motivation, and biographical influence, although very difficult to identify and measure, must logically be included within the larger context necessary for analyzing educational

achievement. The complexities are increased by these non-intellective factors, but the rewards are promising. As Brown (14:537) sums it,

> Consider for example, the increased power the educator would have to maximize the intellectual potential of students if the contingent relationships of cognitive power, atmosphere for learning, social class values, and personal predispositions were understood sufficiently to allow bringing each of these attributes to bear on the educational development of the student.

Summary

Literature pertaining to this study was reviewed within four general areas of research. The first area revealed that very little research has been conducted with agriculturally oriented college students. Rural youth enrolled in college are atypical and those planning to farm are significantly different from other rural youth. Previous studies indicate that rural students who seek post high school education are different as a group from other rural youth, but little has been undertaken to ascertain differences among them as individuals.

Short course or non-degree programs are found in 69 per cent of the land-grant institutions. Over 100 other types of colleges or vocational institutes have similar programs. Course objectives are usually directly related to a specific vocational area. Admission requirements are very liberal. Most short course programs require only a high school diploma for admission. No scientifically designed research studies of short course students, that have been published, are known and other reports available do not give sufficient information to be useful and valid.

Research dealing with rural youth thus far varies greatly in regard to the use of acceptable research procedures. Lack of control

over sample size and selection, unreported validity and reliability coefficients for the instruments used, and a limited strata of subjects, usually of high school age, make any generalizations from most studies of this type inadvisable. There is evidence that farming and agriculture are becoming more selective by virtue of a Darwinian-type survival process. Much of the research available points to the undesirable position of those who cannot farm and must compete in the urban labor market for a livelihood. Rural children are at a disadvantage in this competition. Family and home influence is credited with determining, to a very large extent, how well a rural youth will compete in the working world. Farm families are not strong supporters of higher education according to previous studies. This lack of active support for higher education among rural parents is compounded by lower educational aspirations for the children and lack of adequate vocational guidance. Action to influence rural youth to consider post high school training and vocational counseling is called for in several studies.

Students in agricultural college degree or short course programs are chronologically more mature than many of the rural youth previously studied. Most are from farm backgrounds and have marked themselves as different from the typical farm youth by committing themselves to higher education in farming and agriculturally related fields. One of the assumptions of this study was that the different academic requirements and goals of the two programs of study might reveal differences between the two groups of students.

The presence of a relationship between aspiration, personality, attitude, dogmatism, and academic aptitude with educational achievement

is unquestioned. The extent and precise influence of the relationship are, however, still in doubt. Psychological factors are extremely difficult to identify and quantify for replication and research. In attempting to delineate degree students from short course students, clearly significant differences on separate psychological factors or on patterns of several factors appeared to be most promising with the following five psychological factors: personality traits, beliefs and attitudes regarding work, dogmatism, occupational aspiration, and academic aptitude. Previous research had shown each factor capable of distinguishing between various types of subjects.

Sociological factors have also been well documented as sources of influence affecting educational achievement. The socio-economic level of the family is reportedly related to a variety of psychological factors. Participation and responsibility in earning the family income apparently affects one's occupational and educational aspirations adversely. Similarly, lack of adequate parental vocational guidance may limit one's occupational aspiration level. Economic reality is a determining factor in educational achievement for many students. The literature reviewed indicates farm parents are less likely to want to support a college student and less able to afford it.

CHAPTER III

PROCEDURE AND METHOLOGY

Preliminary Investigation

A pilot study was conducted during the fall term of 1963. The pilot study was conducted with essentially the same student populations and instrumentation as the present study. Problems and inadequacies revealed during the pilot study resulted in modifications of some of the instrumentation, methods of collecting data, and the population selection criteria used in this investigation.

Populations Used in the Study

Two populations of students who were enrolled in the College of Agriculture at Michigan State University during the fall term of 1964 are included in the study. Only male students enrolled in their first post high school educational programs were included. Foreign, female, and transfer students were not included.

One group consisted of 199 students enrolled in a four-year baccalaureate degree program within the College of Agriculture's eleven major areas of study.

The other group consisted of 176 students enrolled in a two-year certificate program within the Short Course Department's two major areas of study.

Data were gathered from every student in both groups. The statistical analysis of the study is based upon total populations rather than samples of the populations.

Selection of the Populations and Data Gathering Procedures

The investigator sought to compare the two populations of this study during the initial stages of their first post high school educational programs. Since transfer and foreign students had been subjected to influences atypical from the majority of students enrolled in the two programs, they were not included in the populations. Female students, who represent less than 10 per cent of all those enrolled in either program, were similarly not included.

A letter explaining the study and requesting assistance was sent to each degree student prior to the 1964 fall academic term.[1] Two group meeting sites and dates were designated during the first two weeks of the term. A second letter was sent later to those who did not respond, indicating a third meeting site and time. Three data gathering meetings were held during the first month of the term. A total of 132 or 66 per cent of the students attended. The remaining sixty-seven students were sent a third letter and contacted individually by telephone to request that they appear at the office of the Director of Resident Instruction of the College of Agriculture to complete the research instruments. All but two of the students did so. The two remaining were contacted by the investigator but only partial returns were obtained from them. They are not included in the statistical analysis.

All mailed requests for participation in the study were signed and mailed by the Director of Resident Instruction, College of Agriculture, the administrative officer to whom the degree students were directly responsible.

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[1] Copies of the letters used to contact the students may be found in Appendix A.

The short course population was first contacted at the time of their orientation tests; one day prior to registration for the fall term. The eighty-three who enrolled in the Agricultural Industries courses were tested on September 29, 1964. The research instruments were also administered on that date. The ninety-three students enrolled in the General Agriculture courses were given orientation tests on October 20, 1964. The research instruments were also administered on that date.

Permission to study and contact the short course students was given by the Director of Short Courses, the administrative officer to whom these students were directly responsible.

Because of omissions on the instruments, portions which were incorrectly filled out, or late registration, follow-up procedures were conducted by the investigator. Subjects who had failed to complete the research instruments satisfactorily were requested to do so by telephone, in person, or by mail. Complete returns were obtained from over 99 per cent of the subjects in both groups included in the study.

A copy of the instruction sheet and four of the instruments used by the investigator can be found in Appendix A. The Sixteen Personality Factor Test, Form A, is copyrighted by the Institute for Personality and Ability Testing, and in order to protect the validity of the test, it is not included in the appendices. These five instruments were administered and supervised by the investigator.

The College Qualification Test is copyrighted by the Psychological Corporation and is not included in the appendices in order to protect the validity of the test. This test was administered by the

Michigan State University Counseling Center psychometrist and is a portion of the regular orientation testing procedure for all degree students. It was administered to the short course students at the request of the investigator.

The College Qualification Test is a timed instrument which requires approximately one and one half hours to complete. The five instruments administered and supervised by the investigator were not timed but required approximately one hour and fifteen minutes to complete.

Instruments Used in the Study

The instruction sheet which accompanied each set of five research instruments contained a brief paragraph explaining the nature of the study, a check-list of instruments included, procedural instructions, and a paragraph, in capital letters, assuring the students that their replies to all questions would be regarded as confidential.

The biographical questionnaire found in Appendix A was developed by the investigator. It was used in the pilot study during the fall term of 1963 and subsequently revised for this study. The questionnaire originally consisted of eighty-seven questions, some with several parts. The revised questionnaire consists of forty-eight questions, with four requiring two answers.

Because of problems resulting from poorly written answers in the pilot study, all except two questionnaire items were revised so that they could be answered by encircling the appropriate choice from several possible answers. Questions found in the original instrument, but deleted for this study, were either not relevant to the study or were misinterpreted by the respondents.

The questionnaire was developed in consultation with Michigan State University staff members from the Department of Evaluation Services, Office of Institutional Research, Department of Sociology, Department of Short Courses, Office of Extension Personnel Development, and the Director of Resident Instruction of the College of Agriculture.

The College Qualification Test, Form C, consists of seventy-five items designed to measure verbal ability, fifty items which measure skill in interpreting numerical concepts, and seventy-five items which assess general information from a broad range of subjects. The three sub scores may be summed to yield a composite score which is used as a measure of academic aptitude and as a predictor of academic achievement in college.

Extensive nationwide studies have been undertaken to establish the validity and reliability of the College Qualification Tests. Validity studies reported in the CQT manual (6), comparing grade point averages with CQT total scores for 10,571 male students at public colleges, reveal product-moment coefficients ranging from .37 to .72. The average coefficient value for twenty-one different groups studied exceeded .50.

Test-retest and odd-even item score comparisons indicate a high degree of internal consistency or reliability for the CQT total score. Coefficients reported from studies of 1994 male college students exceeded .90 (6). Other studies have reported similarly favorable results for both validity and reliability (22) (55).

The Rokeach Dogmatism Scale, Form E, consists of forty items measuring individual differences in openness and closedness of belief systems (88:71). The instrument is scored on a six point, I agree

very much to I disagree very much, scale with possible scores extending from 40 to 280. The lower a subject's score, the less dogmatic he is; and the higher the score, the more dogmatic he is or the more closed is his belief system. The Scale, developed by Milton J. Rokeach of Michigan State University, is an attempt to measure dogmatism as a relatively closed cognitive framework of beliefs and disbeliefs concerning reality. Dogmatism is interpreted as being a more intellectualized and abstract form of resistance to change than rigidity.

The Form E Scale was found to have reliability coefficients ranging from .68 to .93 for samples tested in the United States (89). A split half reliability coefficient of .76 was reported by Lehmann (69).

Validity coefficients are extremely difficult to derive from measuring devices of this type. In discussing studies conducted to validate two of his instruments, the Opinionation Scale and the Dogmatism Scale, Rokeach concluded, ". . . that it is as yet premature to say to what extent our measures are general measures of authoritarianism and intolerance." (89:108). The Dogmatism Scale compared favorably to scales known to measure authoritarianism and intolerance, but no specific validity coefficient is possible at this time.

The Occupational Aspiration Scale is an eight-item multiple choice instrument. It was designed by Haller and Miller (47) as a relative measure of level of occupational aspiration, not as an absolute measure. There are ten occupational choices scaled to span the prestige range designed by the National Opinion Research Center in each item. Subjects respond to four questions related to occupational choices at two levels, realistic and idealistic. There are two short-range and two long-range questions within each level. Choices within

each item are scored from zero for the lowest prestige level to nine for the highest. Total scores range from zero to seventy-two.

The results of reliability studies by the authors of the instrument reveal coefficients of about .80. Predictive validity tests which require long term studies have not been completed as yet. Validity studies completed thus far indicate promising results. According to Miller and Haller, it is safe to assume the instrument valid for use with adolescent males (76).

The Michigan State University Work Beliefs Check-List is a forty-four item instrument measuring attitudes and beliefs regarding work. Six areas of beliefs are included. They are as follows: (1) expressive vs. instrumental value of work; (2) positive vs. negative evaluation of structured time; (3) positive vs. negative evaluation of physical mobility; (4) positive vs. negative evaluation of change; (5) internal vs. external determination of events; and (6) positive vs. negative evaluation of deferred gratification. The check-list is scored on an agree-disagree scale. Sub scores for each area range from one to eight. Total scores are not calculated.

One of the basic assumptions upon which this check-list is constructed is that beliefs concerning work can be arranged on a continuum. At one end are rural, non-industrialized people who belong to extended-kinship-type families, and at the other end are the urban, industrialized people from nuclear-type families.

High scorers on the sub scale I will value work and disagree with statements implying work is only a means to a financial end. Sub scale II scores depend on the assumption that persons valuing structured time are more often from urban and industrialized backgrounds.

Sub scale III mentions home and family ties in connection with physical mobility. The implication is that rural, non-industrialized people from extended-kinship families will not value physical mobility. Sub scale IV is related to sub scale III but offers statements concerning conditions other than home and family. Sub scale V is constructed on the principal that those viewing industrialization favorably will believe in internal or self-determined causation of events. Broad middle class values related to extended education, thrift, and hard work are intended to differentiate between persons on sub scale VI.

An attempt to measure the internal consistency of the instrument through a correlation analysis of the six sub areas revealed that, except for one area, the check-list "agrees with itself" (23:54). A similar internal consistency test was the basis for establishing the validity of the instrument. Each item was analyzed to determine whether the items were measuring the variable intended. Except for some qualification for the six items from sub scale III, the area of lowest agreement with the five other sub scales, the items within the check-list exhibited a high level of internal consistency and, to this extent, were thought to measure the intended variable (23).

The Sixteen Personality Factor Test, Form A, measures separate source traits or dimensions of personality. Extensive factor analytic research has shown these traits or dimensions to be real, functionally unitary, and psychologically significant dimensions of personality. The sixteen factors measured by this instrument have been discovered in questionnaire materials and validated or identified by correlating them with factors found in observer ratings in everyday life situations.

There are ten questions for eight of the factors and thirteen questions for the remaining eight factors. Each question has three possible responses which are weighted from zero to plus two. Three extraneous questions, which do not contribute to any factors, are included in the total of 187 questions. The test is untimed and usually takes approximately twenty-five minutes to complete.

The split half reliability coefficients on a sample of 200 subjects, corrected to the full number of items in forms A and B, are as follows for the various factors: A, .84; B, .70; C, .71; E, .82; F, .85; G, .56; H, .74; I, .54; L, .55; M, .72; N, .65; O, .88; Q_1, .50; Q_2, .61; Q_3, .53; Q_4, .76. Test-retest coefficients have been determined for Form C of the test, a shortened version of Forms A and B. Reliability coefficient values average approximately .49 for all sixteen factors (19).

Even though construct validity has been demonstrated by correlating observer ratings and questionnaire data, predictive validity is dependent upon the subjects being tested. Questionnaires have been shown to have their most valid applications with students or cooperative anonymous subjects who completed the test under research conditions.

A brief description of the traits associated with each factor is included in Appendix A. The terms, titles, and descriptions are condensed from the Sixteen Personality Factor Test Manual and a text by Dr. Raymond B. Cattell, author of the instrument (17) (19).

Research Hypotheses of the Problem

This study originated because of a lack of comparative data concerning the two populations herein examined. Differences between degree and short course students have been assumed, but no scientifically

reliable data has been presented to substantiate these assumptions. Since exploratory studies are developed and carried out to answer unresolved questions, they do not lend themselves to theory based hypotheses. Thus, only two general research hypotheses are investigated in this study.

1. It can by hypothesized that sociological differences exist between agricultural short course and degree students.
2. It can be hypothesized that psychological differences exist between agricultural short course and degree students.

The paucity of specific research hypotheses is indicative of the lack of current and valid information which presently restricts the degree to which one can make accurate comparisons of these two populations.

Statistical Procedures for Analysis of the Data

Each student's scores and responses from the research instruments were coded and key punched into two IBM cards by the Michigan State University Data Processing Department. A total of seventy-three variables were recorded for each student. Data from all 176 agriculture short course students and from 197 of 199 agriculture degree students who enrolled at Michigan State University during the fall term of 1964 were used in the statistical analysis. Two degree students supplied only partial data and were excluded from the analysis.

The data were processed through the Michigan State University 3600 Computer according to previously prepared Analysis of Contingency Tables (ACT II) (98) and CORE (57) programs. Category or cell groupings of the data for chi square analysis were taken from national normative studies of similar groups or instrument author's suggested grouping wherever possible. The ACT II program calculated and printed

observed frequencies, row means and standard deviations for each population, percentage of cells in row totals, theoretical frequencies, cell contribution to chi square, chi square with degrees of freedom and product-moment correlation coefficients. The CORE program calculated population means, standard deviations and product-moment correlation coefficients. Chi Square Tests were used with nominal scale data and Unit Normal Curve Probability or "Z" tests with cardinal scale data to determine statistically significant differences between populations.

The main statistical hypotheses and the sub hypotheses tested were as follows:

Ho-1. There are no differences in personality traits between agriculture short course and degree students as measured by the Sixteen Personality Factor Test.

Sub Hypotheses

Ho-1.a. Factor A	Cyclothymia versus Schizothymia
Ho-1.b. Factor B	General Intelligence versus Mental Defect
Ho-1.c. Factor C	Emotional Stability or Ego Strength versus General Neuroticism
Ho-1.e. Factor E	Dominance or Ascendance versus Submission
Ho-1.f. Factor F	Surgency versus Desurgency
Ho-1.g. Factor G	Positive Character versus Immature Dependent Character
Ho-1.h. Factor H	Adventurous Cyclothymia versus Inherent Withdrawn
Ho-1.i. Factor I	Emotional Sensitivity versus Tough Maturity
Ho-1.l. Factor L	Paranoid Schizothymia versus Trustful Accessibility
Ho-1.m. Factor M	Bohemianism versus Practical Concernedness
Ho-1.n. Factor N	Sophistication versus Rough Simplicity
Ho-1.o. Factor O	Worrying Suspiciousness versus Calm Trustful
Ho-1.q_1. Factor Q_1	Radicalism versus Conservatism
Ho-1.q_2. Factor Q_2	Independent Self-Sufficiency versus Lack of Resolution (Dependent)
Ho-1.q_3. Factor Q_3	Will Control Versus Lack of Character Stability
Ho-1.q_4. Factor Q_4	Nervous Tension

Ho-2. There are no differences in work attitudes between agriculture short course and degree students as measured by the Michigan State University Work Beliefs Check-list.

Sub-Hypotheses

- Ho-2.a. Expressive vs. instrumental value of work
- Ho-2.b. Positive vs. negative evaluations of structured time
- Ho-2.c. Positive vs. negative evaluation of physical mobility
- Ho-2.d. Positive vs. negative evaluation of change
- Ho-2.e. Internal vs. external determination of events
- Ho-2.f. Positive vs. negative evaluation of deferred gratification

Ho-3. There is no difference in the degree of dogmatism between agriculture short course and degree students as measured by the Rokeach Dogmatism Scale, Form E.

Ho-4. There is no difference in the level of occupational aspiration between agriculture short course and degree students as measured by the Occupational Aspiration Scale.

Ho-5. There is no difference in academic aptitude between agriculture short course and degree students as measured by the College Qualification Test.

Sub Hypotheses

- Ho-5.a. Verbal score
- Ho-5.b. Informational score
- Ho-5.c. Numerical score

Ho-6. There is no difference between agriculture short course and degree students in regard to the following sociological factors:

- Ho-6.a. Father's education
- Ho-6.b. Mother's education
- Ho-6.c. Father's occupation
- Ho-6.d. Mother's occupation
- Ho-6.e. Father's income
- Ho-6.f. Number of older brothers
- Ho-6.g. Home location
- Ho-6.h. Occupational choice crystallization
- Ho-6.i. Parental encouragement to attend either a college or short course program
- Ho-6.j. Number of years of vocational agricultural courses completed in high school
- Ho-6.k. Number of job experiences outside of the major area of study.
- Ho-6.l. Preference for working with ideas, machines, animals, people, or plants.

Sampling or inferential statistical tests and criterion of significant difference are being used even though this study compares two populations. The possibility that these populations may be considered samples of a larger abstract population of past and future agriculture students make it advisable to use sampling statistics. The .05 level of significance was selected as the criterion in testing the statistical or null hypotheses. This level will result in acceptance of the null hypothesis one time in twenty cases purely by chance. Changes which may be instituted in the agriculture degree and short course programs as a result of this study require a minimum precision at the .05 level in judging whether differences are significant. All statistical tests of the null hypotheses are recorded on tables in Chapter Four and in Appendix B.

Summary

This study was designed to compare two populations of agriculture students on selected psychological and sociological factors thought to be related to educational achievement and educational and occupational advisement. A pilot study completed in the fall term of 1963 resulted in modification and improvement of instrumentation and data collection techniques used in this study.

Student responses on test and questionnaire instruments were sought from 176 first-year short course students and 199 first-year degree students. Complete data were gathered from all but two degree students. Inferential statistics were used in the analysis of population data to permit application of the results to a conceptualized population. The data were statistically analyzed by means of the Michigan State University 3600 Computer ACT II and CORE programs

using "Z" tests and chi square statistics to test the significance of the findings.

The factors studied were thought to be related to educational achievement and educational and occupational advisement. Studies reviewed in Chapter II indicate that these factors are related, in varying degrees, to educational achievement and advisement. Chapter IV contains the analysis of the data.

CHAPTER IV

ANALYSIS OF THE DATA

This chapter presents the analysis of the data in two sections. The first section cites the psychological factors examined, and the second section presents the sociological factors used in comparing the two populations of agriculture college students. The discussion accompanying the data emphasizes the differences between the populations, since this was the primary purpose of the study.

The statistical hypotheses were tested by use of the Chi Square (X^2) Test and the Unit Normal Curve Probability or Z Test. The Z Test is meaningful only where the data are continuous and parametric. It is thus limited to testing mean score differences on instruments using cardinal scale values.

The statistical hypotheses were rejected wherever the chi square or Z values indicated a difference significant at the .05 level.

Psychological Factors Examined

Personality Factors:

Ho-1. There are no differences in personality traits between agriculture short course and degree students as measured by the Sixteen Personality Factor Test.

This general hypotheses was rejected. Mean scores and statistical test data for each of the sixteen factors are found in Table 1. More complete data for individual factors can be found in Appendix B, Table 18 through Table 33.

TABLE 1: Mean scores of agriculture short course and degree students on the Sixteen Personality Factor Test

FACTORS	SHORT COURSE STUDENTS	DEGREE STUDENTS	STATISTICAL TEST VALUES	
	Mean	Mean	Z Test	Sign. Level
A. Cyclothymia versus Schizothymia	8.227	8.614	1.206	.23
B. General Intelligence versus Mental Defect	6.744	7.817	5.531	*.0001
C. Emotional Stability versus General Neuroticism	15.352	16.487	3.234	*.001
E. Dominance or Ascendance versus Submission	12.489	12.843	.932	.35
F. Surgency versus Desurgency	14.614	15.381	1.840	.07
G. Positive Character versus Immature Dependent Char.	12.767	12.594	.537	.59
H. Adventurous Cyclothymia versus Inherent Withdrawn	11.330	11.553	.454	.65
I. Emotional Sensitivity versus Tough Maturity	7.903	7.802	.342	.74
L. Paranoid Schizothymia versus Trustful Accessibility	9.381	9.421	.125	.90
M. Bohemianism versus Practical Concernedness	10.693	10.964	.842	.39
N. Sophistication versus Rough Simplicity	10.523	10.437	.361	.73
O. Worrying Suspiciousness versus Calm Trustful	11.063	10.249	2.293	*.02
Q_1. Radicalism versus Conservatism	9.267	9.157	.401	.69
Q_2. Independent Self-Sufficiency versus Lack of Resolution	9.636	10.254	1.896	.058
Q_3. Will Control versus Lack of Character Stability	10.114	9.970	.500	.61
Q_4. Nervous Tension	13.193	12.574	1.328	.18

*At or beyond the .05 level of significance.

It can be seen that measurements on factor B, General Intelligence versus Mental Defect; factor C, Emotional Stability versus General Neuroticism; and factor O, Worrying Suspiciousness versus Calm Trustful exhibit significant differences causing rejection of sub hypotheses Ho-1.b, Ho-1.c, and Ho-1.o listed on page 43.

On the basis of factor B results, degree students are more intelligent, more assertive, quicker to grasp ideas, and more likely to be successful in classroom learning situations than short course students.[1]

Factor C contrasts Emotional Stability or Ego Strength with General Neuroticism. Degree students score higher than short course students on factor C indicating they are more emotionally mature and stable, more realistic about life, less worried and less impulsive. By contrast, short course students are described as less mature, lacking in frustration tolerance, more worrying and more anxious.

From scores on factor O, degree students are described as more self-confident, placid, free from suspicion and self-sufficient while short course students are described as more worrying, anxious, suspicious, lonely, and with greater feelings of inadequacy.

There were no statistically significant reasons for rejecting the null hypotheses of no differences between the two populations on sub hypotheses Ho-1: a, e, f, g, h, i, l, m, n, q_1, q_2, q_3, q_4.

Work Beliefs:

Ho-2: There are no differences in work attitudes between agriculture short course and degree students as measured by the Michigan State University Work Beliefs Check-list.

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[1]Descriptive terms used are taken from the Sixteen Personality Factor Test Manual.

Mean scores and statistical test data for each of the six areas of Work Beliefs are found in Table 2.

TABLE 2: Mean scores of agriculture short course and degree students on the Michigan State University Work Beliefs Check-List

BELIEFS	SHORT COURSE STUDENTS	DEGREE STUDENTS	STATISTICAL TEST VALUES	
	Mean	Mean	Z Test	Sign. Level
1. Expressive versus Instrumental	6.773	6.766	.067	.95
2. Positive versus Negative Structured Time	6.142	6.051	.611	.54
3. Positive versus Negative Physical Mobility	3.085	3.650	4.449	*.0001
4. Positive versus Negative Evaluation of Change	6.239	6.426	2.101	*.03
5. Internal versus External Determination of events	6.108	6.193	.669	.50
6. Positive versus Negative Deferred Gratification	5.608	5.731	.969	.33

*At or beyond the .05 level of significance.

Short course and degree students differ significantly on Belief Three, positive versus negative evaluation of physical mobility, and Belief Four, positive versus negative evaluation of change. Degree students view physical mobility more positively than short course students. Similarly, they view change more favorably than short course students.

More complete data for individual beliefs can be found in Appendix B, Table 34 through Table 39. There were no statistically significant reasons for rejecting the null hypotheses of no differences between the two populations on sub hypotheses Ho-2: a, b, e, f.

Dogmatism:

Ho-3. There is no difference in the degree of Dogmatism between agriculture short course and degree students as measured by the Rokeach Dogmatism Scale, Form E.

This hypothesis was rejected. Mean scores, standard deviations, and frequency distributions for the Dogmatism Scale are shown in Table 3.

Short course students are significantly more dogmatic or "closed" in their belief systems than degree students. Table 3 reveals that 18.75 per cent of the short course students score above 200 while only about 5.59 per cent of the degree students score that high. The reverse is true below the 140 score level where 19.29 per cent of the degree students score that low and only 7.96 per cent of the short course students. Frequency distributions for both populations approximate normal curve distributions indicating that the differences are not created by a few extreme scores.

Occupational Aspiration:

Ho-4. There is no difference in the level of occupational aspiration between agriculture short course and degree students as measured by the Occupational Aspiration Scale.

This hypothesis was rejected. Mean scores, standard deviations, and frequency distributions for the Occupational Aspiration Scale are illustrated in Table 4.

Degree students score significantly higher than short course students indicating that they have higher occupational aspirations.

College Qualification Test:

Ho-5. There is no difference in academic aptitude between agriculture short course and degree students as measured by the College Qualification Test.

TABLE 3: Distribution of scores of agriculture short course and degree students on the Rokeach Dogmatism Scale, Form E*

	SCORES											
	040-080	081-100	101-120	121-140	141-160	161-180	181-200	201-220	221-240	241-280	Mean	S.D.
Short Course Students	.00	.00	1.00	13.00	37.00	46.00	46.00	26.00	7.00	.00	**176.46	25.50
Pct. Across	.00	.00	.57	7.39	21.02	26.14	26.14	14.77	3.98	.00		
Theoret. Freq.	.00	1.42	4.72	18.40	41.05	51.43	38.22	16.99	3.77	.00		
Chi Square	.00	1.42	2.93	1.59	.40	.57	1.58	4.78	2.76	.00		
Degree Students	.00	3.00	9.00	26.00	50.00	63.00	35.00	10.00	1.00	.00	**162.30	24.78
Pct. Across	.00	1.52	4.57	13.20	25.38	31.98	17.77	5.08	.51	.00		
Theoret. Freq.	.00	1.58	5.28	20.60	45.95	57.57	42.78	19.01	4.23	.00		
Chi Square	.00	1.26	2.62	1.42	.36	.51	1.41	4.27	2.46	.00		

*Chi Square = 30.346, degrees of freedom = 7, significant at .001 level.
**Z = 5.428, significant at .0001 level.

TABLE 4: Distribution of scores of agriculture short course and degree students on the Occupational Aspiration Scale.*

	SCORES											
	00-12	13-18	19-24	25-30	31-36	37-42	43-48	49-54	55-60	61-72	Mean	S.D.
Short Course Students	.00	9.00	17.00	42.00	39.00	38.00	17.00	10.00	4.00	.00	**34.02	9.71
Pct. Across	.00	5.11	9.66	23.86	22.16	21.59	9.66	5.68	2.27	.00		
Theoret. Freq.	.00	4.72	10.38	28.78	30.20	39.64	25.95	21.23	11.32	3.77		
Chi Square	.00	3.88	4.22	6.07	2.57	.07	3.09	5.94	4.74	3.77		
Degree Students	.00	1.00	5.00	19.00	25.00	46.00	38.00	35.00	20.00	8.00	**43.38	10.34
Pct. Across	.00	.51	2.54	9.64	12.69	23.35	19.29	17.77	10.15	4.06		
Theoret. Freq.	.00	5.28	11.62	32.22	33.80	44.36	29.05	23.77	12.68	4.23		
Chi Square	.00	3.47	3.77	5.42	2.29	.06	2.76	5.31	4.23	3.37		

*Chi Square = 65.040, degrees of freedom = 8, significant at .001 level.
**Z = 9.013, significant at .0001 level.

This hypothesis was rejected. Sub hypotheses Ho-5.a, Ho-5.b, and Ho-5.c dealing with sub scores on the verbal, informational, and numerical sections of the CQT were also rejected. Mean scores and statistical test data for the CQT sections and the complete test are presented in Table 5. More complete data for each section can be found in Appendix B, Table 40 through Table 43.

TABLE 5: Mean scores of agriculture short course and degree students on the College Qualification Test

SECTION OF TEST	SHORT COURSE STUDENTS	DEGREE STUDENTS	STATISTICAL TEST VALUES	
	Mean	Mean	Z Test	Sign. Level
Verbal	28.261	43.883	11.598	*.0001
Informational	36.483	49.193	14.609	*.0001
Numerical	18.943	30.726	14.710	*.0001
Total Score	83.631	123.802	16.423	*.0001

*At or beyond the .05 level of significance.

Degree students score significantly higher on all three aspects of this measure of academic aptitude.

Sociological Factors Examined

Educational Levels of Parents:

Ho-6.a. There is no difference between agriculture short course and degree students in regard to the number of years of school their fathers have completed.

Ho-6.b. There is no difference between agriculture short course and degree students in regard to the number of years of school their mothers have completed.

Tables 6 and 7 illustrate the comparative educational levels of the fathers and mothers of the agriculture short course and degree students in this study.

A significant difference is apparent in the years of school completed by the farmers. Therefore, hypothesis Ho-6.a was rejected. The fathers of short course students completed fewer years of school. Two of the major sources of the chi square statistical difference are the larger number of short course students' fathers who dropped out of school after the eighth grade, 23.3 per cent, compared to only 13.2 per cent of the degree students' fathers and the lesser number completing four years of college, 9.7 per cent compared to 18.8 per cent. The mean number of years of school completed was 11.13 for short course students' fathers and 12.16 for degree students' fathers.

Statistical hypothesis Ho-6.b was not rejected. The degree students' mothers' mean number of years of school completed was only slightly higher, 12.28 years to 11.93 years, than short course students' mothers'.

The percentages of short course students' fathers and mothers attending at least one year of college were 19.89 and 27.27 per cent respectively. The percentages of degree students' fathers and mothers attending at least one year of college were 39.08 and 37.05 per cent respectively.

Parents' Occupations:

Ho-6.c. There is no difference between agriculture short course and degree students in regard to the types of occupations of their fathers.

Ho-6.d. There is no difference between agriculture short course and degree students in regard to the types of occupations of their mothers.

TABLE 6: Years of school completed by fathers of agriculture short course and degree students.*

	YEARS										
	Less-8	8	9	10	11	12	1	2	3	4 or More	Mean
Short Course Students	4.00	41.00	11.00	13.00	5.00	67.00	6.00	10.00	2.00	17.00	11.13
Pct. Across	2.27	23.30	6.25	7.39	2.84	38.07	3.41	5.68	1.14	9.66	
Theoret. Freq.	5.66	31.61	6.13	10.85	5.19	63.70	10.38	13.68	3.30	25.48	
Chi Square	.49	2.79	3.86	.42	.01	.17	1.85	.99	.51	2.82	
Degree Students	8.00	26.00	2.00	10.00	6.00	68.00	16.00	19.00	5.00	37.00	12.16
Pct. Across	4.06	13.20	1.02	5.08	3.05	34.52	8.12	9.64	2.54	18.78	
Theoret. Freq.	6.34	35.39	6.87	12.15	5.81	71.30	11.62	15.32	3.70	28.52	
Chi Square	.44	2.49	3.45	.38	.01	.15	1.65	.89	.46	2.52	

*Chi Square = 26.345, degrees of freedom = 9, significant at .01 level.

TABLE 7: Years of school completed by mothers of agriculture short course and degree students.*

	YEARS										
	Less-8	8	9	10	11	12	1	2	3	4 or More	Mean
Short Course Students	2.00	19.00	6.00	7.00	10.00	84.00	12.00	16.00	3.00	17.00	11.93
Pct. Across	1.14	10.80	3.41	3.98	5.68	47.73	6.82	9.09	1.70	9.66	
Theoret. Freq.	1.89	18.40	5.66	8.02	5.66	79.27	14.63	16.99	5.19	20.29	
Chi Square	.01	.02	.02	.13	3.32	.28	.47	.06	.92	.53	
Degree Students	2.00	20.00	6.00	10.00	2.00	84.00	19.00	20.00	8.00	26.00	12.28
Pct. Across	1.02	10.15	3.05	5.08	1.02	42.64	9.64	10.15	4.06	13.20	
Theoret. Freq.	2.11	20.60	6.34	8.98	6.34	88.73	16.37	19.01	5.81	22.71	
Chi Square	.01	.02	.02	.12	2.97	.25	.42	.05	.83	.48	

*Chi Square = 10.922, degrees of freedom = 9, significant at .30 level.

Tables 8 and 9 contain classifications of the occupations of fathers and mothers respectively.

Statistical hypothesis Ho-6.c was rejected. The major difference between populations results from the proportions of fathers following professional occupations. Sixteen per cent of the fathers of degree students are employed in a profession as compared to 4 per cent of fathers of short course students. A disproportionately higher number of fathers of short course students who are farmers also contributed to the significant chi square values.

The fathers of both populations are predominantly blue collar workers. In table 8, blue collar occupations are those classified under farmer, factory worker, and carpenter category captions. There are 73.85 per cent of the short course students' fathers employed in blue collar occupations and 55.33 per cent of the degree students' fathers.

Statistical hypothesis Ho-6.d was not rejected. Statistical evidence does not warrant the conclusion that the mothers' occupations were significantly different between the two populations. Over 70 per cent of the mothers of both populations are primarily housewives.

Income:

Ho-6.e. There is no difference between agriculture short course and degree students in regard to the level of income of their fathers.

Statistical hypothesis Ho-6.e was rejected. Table 10 illustrates the relative income levels of the fathers in two categories, farmer and non-farmer.

TABLE 8: Occupations of fathers of agriculture short course and degree students.

	FATHER'S MAIN OCCUPATION									
	Deceased or Other	Farmer Owner	Farmer Renter	Small bus. Owner	Small Bus. Employee	Profes-sional	Factory worker, Trucker Mech.	Skilled Carp.-Plumb. Elect.-etc.	Gov. Employee	Retired, Pensioned
Short Course Students	8.00	87.00	3.00	23.00	5.00	7.00	31.00	9.00	3.00	.00
Pct. Across	4.55	49.43	1.70	13.07	2.84	3.98	17.61	5.11	1.70	.00
Theoret. Freq.	10.85	70.31	2.83	17.46	9.91	18.40	29.25	10.38	5.19	1.42
Chi Square	.75	3.96	.01	1.76	2.43	7.06	.10	.18	.92	1.42
Degree Students	15.00	62.00	3.00	14.00	16.00	32.00	31.00	13.00	8.00	3.00
Pct. Across	7.61	31.47	1.52	7.11	8.12	16.24	15.74	6.60	4.06	1.52
Theoret. Freq.	12.15	78.69	3.17	19.54	11.09	20.60	32.75	11.62	5.81	1.58
Chi Square	.67	3.54	.01	1.57	2.17	6.31	.09	.16	.83	1.26

Chi Square = 35.231, degrees of freedom = 9, significant at .001 level.

TABLE 9: Occupations of mothers of agriculture short course and degree students.

	MOTHER'S OCCUPATION									
	Deceased	Housewife	Teacher	Restaurant Employee	Office Worker	Sales	Day Worker	Self Employ.- Bus. Woman	Nurse	Other
Short Course Students	3.00	129.00	7.00	1.00	15.00	2.00	5.00	3.00	4.00	7.00
Pct. Across	1.70	73.30	3.98	.57	8.52	1.14	2.84	1.70	2.27	3.98
Theoret. Freq.	3.77	125.98	12.27	1.42	12.74	2.36	3.77	1.89	3.77	8.02
Chi Square	.16	.07	2.26	.12	.40	.05	.40	.66	.01	.13
Degree Students	5.00	138.00	19.00	2.00	12.00	3.00	3.00	1.00	4.00	10.00
Pct. Across	2.54	70.05	9.64	1.02	6.09	1.52	1.52	.51	2.03	5.08
Theoret. Freq.	4.23	141.02	13.73	1.58	14.26	2.64	4.23	2.11	4.23	8.98
Chi Square	.14	.06	2.02	.11	.36	.05	.36	.59	.01	.12

*Chi Square = 8.081, degrees of freedom = 9, significant at .70 level.

TABLE 10: Estimated income levels and values of farms owned by fathers of agriculture short course and degree students

*FARMER-FATHERS			**NON-FARMER-FATHERS		
Estimated Farm Value	Fathers of Short Course Students	Fathers of Degree Students	Estimated Income	Fathers of Short Course Students	Fathers of Degree Students
Less-10,000	1	0	Less-2,000	3	0
10,000-29,999	12	9	2,000-3,499	3	2
30,000-49,999	13	7	3,500-4,999	15	4
50,000-69,999	13	14	5,000-6,999	21	21
70,000-89,999	9	12	7,000-8,999	12	28
90,000-109,999	13	7	9,000-10,999	8	18
110,000-129,999	4	6	11,000-14,999	5	17
130,000-149,999	11	2	15,000-19,999	4	4
150,000-above	14	7	20,000-Above	7	11
No Reply	0	1	No Reply	0	9
***Total	90	65		78	114

*Chi Square = 11.47, degrees of freedom = 9, significant at .30 level.

**Chi Square = 30.44, degrees of freedom = 9, significant at .001 level.

***Eight fathers of short course students and eighteen fathers of degree students who were retired, pensioned or deceased are not included in this table.

Estimates of fathers' incomes by students are admittedly not entirely accurate. However, there is no reason to believe that one group would be less accurate than the other. Income estimates were grouped according to whether the father's main occupation was farming or non-farming.

The mean estimated value for farms of short course students' fathers was $85,388 while farms of degree students' fathers were estimated to average $78,281. The mean estimated gross income of short course students' fathers who were non-farmers was $8,359 as compared to $10,129 for degree students' fathers. The major source of the

difference between the two populations is due to the higher estimated income of non-farmer fathers of degree students. Here, as in the fathers' education level average, the larger proportion of professional fathers among degree students offers an explanation for the difference.

Number of Older Brothers:

Ho-6.f. There is no difference between agriculture short course and degree students in regard to the number of older brothers.

Statistical hypothesis Ho-6.f was not rejected. Table 11 shows the number of older brothers of short course and degree students.

TABLE 11: Number of older brothers of agriculture short course and degree students.*

	None	One	Two	Three	Four	Six	Mean
Short Course Students	105.00	49.00	16.00	4.00	1.00	1.00	.585
Pct. Across	59.66	27.84	9.09	2.27	.57	.57	
Theoret. Freq.	112.30	43.41	15.57	3.77	.47	.47	
Chi Square	.47	.72	.01	.01	.59	.59	
Degree Students	133.00	43.00	17.00	4.00	.00	.00	.451
Pct. Across	67.51	21.83	8.63	2.03	.00	.00	
Theoret. Freq.	125.70	48.59	17.43	4.23	.53	.53	
Chi Square	.42	.64	.01	.01	.53	.53	

*Chi Square = 4.548, degrees of freedom = 5, significant at .50 level.

Less than 12 per cent of all 373 subjects in both populations had more than one older brother. This factor was included because it was thought that the number of older brothers was related to a student's attendance at college. One assumption was that several older brothers might cause a subject to leave the farm because of a lack of future

opportunity. Significant evidence that older brothers either hinder or facilitate attendance at college or short course programs is not available in this study.

Home Location:

Ho-6.g. There is no difference between agriculture short course and degree students in regard to the location of their homes.

Statistical hypothesis Ho-6.g was rejected. Table 12 presents the home locations of short course and degree students.

The major sources of the significant chi square value are the higher proportion of degree students who come from cities of over 10,000 population and the lower proportion who come from farm homes. It can be seen from Table 12 that the majority of degree students do not come from active farms. Only 42 per cent of the degree students come from farms as compared to 68 per cent of the short course students. When asked whether they had ever lived on a farm, 48 per cent of the degree students and 16 per cent of the short course students indicated they had not.[1]

Occupational Choice Crystallization:

Ho-6.h. There is no difference between agriculture short course and degree students in regard to occupational choice crystallization.

Table 13 illustrates the proportion of students who have definitely decided or crystallized their occupational choice.

Statistical hypothesis Ho-6.h was rejected. Chi square values indicate significant differences between the populations in regard

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[1]Data related to this question can be found in Table 45, Appendix B.

TABLE 12: Home locations of agriculture short course and degree students.*

	HOME LOCATION								
	Farm	Country Non-farm	Under 1,000	1,001-1,999	2,000-4,999	5,000-9,999	10,000-49,999	50,000-Above	No Reply
Short Course Students	120.00	14.00	7.00	2.00	5.00	6.00	6.00	14.00	2.00
Pct. Across	68.18	7.95	3.98	1.14	2.84	3.41	3.41	7.95	1.14
Theoret. Freq.	95.31	16.51	4.25	3.30	6.13	6.13	16.51	26.42	1.42
Chi Square	6.39	.38	1.79	.51	.21	.00	6.69	5.84	.24
Degree Students	82.00	21.00	2.00	5.00	8.00	7.00	29.00	42.00	1.00
Pct. Across	41.62	10.66	1.02	2.54	4.06	3.55	14.72	21.32	.51
Theoret. Freq.	106.69	18.49	4.75	3.70	6.87	6.87	18.49	29.58	1.58
Chi Square	5.71	.34	1.59	.46	.19	.00	5.98	5.22	.22

*Chi Square = 41.779, degrees of freedom = 8, significant at .001 level.

TABLE 13: Occupational choices of agriculture short course and degree students.*

	DEFINITE CHOICE ON OCCUPATION								
	Farming	Agr. Bus.	Agr. Serv.	Agr. Educ.	Non Agr.	Other Agr.	Definite but Non-Spec.	No Decision	No Reply
Short Course Students	69.00	23.00	13.00	2.00	.00	27.00	14.00	24.00	4.00
Pct. Across	39.20	13.07	7.39	1.14	.00	15.34	7.95	13.64	2.27
Theoret. Freq.	39.16	16.99	12.27	9.91	8.02	36.80	14.63	35.39	2.83
Chi Square	22.73	2.13	.04	6.31	8.02	2.61	.03	3.67	.48
Degree Students	14.00	13.00	13.00	19.00	17.00	51.00	17.00	51.00	2.00
Pct. Across	7.11	6.60	6.60	9.64	8.63	25.89	8.63	25.89	1.02
Theoret. Freq.	43.84	19.01	13.73	11.09	8.98	41.20	16.37	39.61	3.17
Chi Square	20.31	1.90	.04	5.64	7.17	2.33	.02	3.27	.43

*Chi Square = 87.141, degrees of freedom = 8, significant at .001 level.

to the types of occupations selected as well as a definite occupational decision. The major sources of the chi square values were found in the short course population where a larger proportion has decided to be farmers and a smaller proportion has decided upon a non-agriculturally related occupation. A comparatively large percentage of students in agricultural programs could be expected to have made a choice of occupation since the curricula are usually vocationally oriented. Short course programs are particularly vocationally oriented.

Parental Encouragement:

Ho-6.i. There is no difference between agriculture short course and degree students in regard to the parental encouragement they received to attend either a short course or degree program.

Statistical hypothesis Ho-6.i was rejected. The students' opinion of whether they felt their parents encouraged them to attend either a short course or degree program is tabulated in Table 14.

TABLE 14: Parental encouragement of agriculture short course and degree students to attend a short course or degree program.*

Encouraged Short Course Program / Encouraged Degree Program	Yes and Yes	Yes and No	No and Yes	No and No	No Reply
Short Course Students	69.00	55.00	5.00	14.00	33.00
Pct. Across	39.20	31.25	2.84	7.95	18.75
Theoret. Freq.	38.69	26.42	77.38	14.16	19.35
Chi Square	23.74	30.90	67.71	.00	9.64
Degree Students	13.00	1.00	159.00	16.00	8.00
Pct. Across	6.60	.51	80.71	8.12	4.06
Theoret. Freq.	43.31	29.58	86.62	15.84	21.65
Chi Square	21.21	27.61	60.49	.00	8.61

*Chi Square = 249.912, degrees of freedom = 4, significant at .001 level.

Several studies reviewed in Chapter II note that parental aspirations are related to the educational aspirations of their children (15) (41) (51) (56) (80). Parents of short course students were favorable to both programs. Parents of degree students encouraged entrance into a college program by an overwhelming proportion.

A more covert expression of encouragement is the amount of financial aid the parents are willing to supply their sons. Approximately one-half of the short course students report their parents supply less than 30 per cent of their expenses as compared to one-third of the degree students receiving less than 30 per cent from their parents. Table 46 in Appendix B reveals the extent of parental support in greater detail.

Vocational Agriculture Courses:

Ho-6.j. There is no difference between agriculture short course and degree students in regard to the number of years of high school vocational agriculture courses completed.

Statistical hypothesis Ho-6.j was rejected. Table 15 shows the past vocational agriculture course enrollments for short course and degree students.

The major source of the significant chi square value is the proportion of students who have had no vocational agriculture courses. Only 25 per cent of the short course students have had no vocational agriculture courses in high school while 62 per cent of the degree students have had no such courses.

Job Experiences:

Ho-6.k. There is no difference between agriculture short course and degree students in regard to the number of job experiences, outside of their major area of study.

TABLE 15: Years of vocational agriculture courses completed in high school by agriculture short course and degree students.*

	YEARS COMPLETED					No	
	1	2	3	4	0	Reply	Mean
Short Course Students	13.00	9.00	15.00	94.00	44.00	1.00	2.56
Pct. Across	7.39	5.11	8.52	53.41	25.00	.57	
Theoret. Freq.	9.91	7.55	12.74	65.12	78.80	1.89	
Chi Square	.96	.28	.40	12.81	15.37	.42	
Degree Students	8.00	7.00	12.00	44.00	123.00	3.00	1.19
Pct. Across	4.06	3.55	6.09	22.34	62.44	1.52	
Theoret. Freq.	11.09	8.45	14.26	72.88	88.20	2.11	
Chi Square	.86	.25	.36	11.45	13.73	.37	

*Chi Square = 57.260, degrees of freedom = 5, significant at .001 level.

Statistical hypothesis Ho-6.k is rejected. Table 16 presents the data related to job experiences. Jobs which require knowledge and skills not normally associated with the occupations within the students major area of study are useful in acquiring information concerning future occupational choices.

The mean number of job experiences reported by both groups was 2.08 jobs; however, a larger proportion of degree students had two or more jobs. The percentage of boys in the General Agriculture short course who live and work on farms probably limits the number of "outside of the area" jobs the short course population can undertake. Farm boys enrolled in the General Agriculture short course who work for other farmers or in farm related enterprises would not be working outside of their area of study. Boys whose fathers are not farmers, even among short course students, are more likely to have wider job experience than are farmers' sons.

TABLE 16: Job experiences, outside of major study area, of agriculture short course and degree students.*

	JOB EXPERIENCES										
	None	1	2	3	4	5	6	7	8	No Reply	Mean
Short Course Students	5.00	59.00	35.00	21.00	10.00	6.00	1.00	1.00	2.00	36.00	2.08
Pct. Across	2.84	33.52	19.89	11.93	5.68	3.41	.57	.57	1.14	20.45	
Theoret. Freq.	3.30	55.68	43.88	29.25	8.02	4.25	1.89	.47	.94	28.31	
Chi Square	.87	.20	1.80	2.33	.49	.72	.42	.59	1.18	2.09	
Degree Students	2.00	59.00	58.00	41.00	7.00	3.00	3.00	.00	.00	24.00	2.08
Pct. Across	1.02	29.95	29.44	20.81	3.55	1.52	1.52	.00	.00	12.18	
Theoret. Freq.	3.70	62.32	49.12	32.75	8.98	4.75	2.11	.53	1.06	31.69	
Chi Square	.78	.18	1.61	2.08	.44	.65	.37	.53	1.06	1.87	

*Chi Square = 20.237, degrees of freedom = 9, significant at .02 level.

Preference in Work:

Ho-6.1. There is no difference between agriculture short course and degree students in regard to preference for working with ideas, machines, animals, people, or plants.

Statistical hypothesis Ho-6.1 is rejected. Table 17 reveals the preferences of both populations. The major sources of the significant chi square value were the differences in the preferences to work with people and machines.

TABLE 17: Preferences of agriculture short course and degree students for working with ideas, machines, animals, people, or plants.*

	Ideas	Machines	Animals	People	Plants	No Reply
Short Course Students	19.00	37.00	41.00	20.00	14.00	45.00
Pct. Across	10.80	21.02	23.30	11.36	7.95	25.57
Theoret. Freq.	19.35	28.78	44.83	32.56	16.04	34.45
Chi Square	.01	2.35	.33	4.84	.26	3.23
Degree Students	22.00	24.00	54.00	49.00	20.00	28.00
Pct. Across	11.17	12.18	27.41	24.87	10.15	14.21
Theoret. Freq.	21.65	32.22	50.17	36.44	17.96	38.55
Chi Square	.01	2.10	.29	4.33	.23	2.89

*Chi Square = 20.859, degrees of freedom = 5, significant at .001 level.

The proportion of short course students preferring to work with machines is greater than the proportion of degree students. Similarly, there are proportionately more degree students who prefer to work with people. Working with ideas was preferred by only 11 per cent of both groups. The highest percentage of those reporting from both groups indicated a preference to work with animals.

Psychological Factors

This section presented data from the agriculture short course and degree student populations in regard to selected psychological factors thought to be related to educational achievement and educational and occupational advisement. The data were tabulated and results were discussed briefly. Statistical tests of the null hypotheses revealed the following significant findings:

1. There are significant differences between agriculture short course and degree students on three personality factors measured by the Sixteen Personality Factor Test. Short course students scored lower on (B) General Intelligence versus Mental Defect and (C) Emotional Stability or Ego Strength versus General Neuroticism. They scored higher on (O) Worrying Suspiciousness versus Calm Trustful.
2. There are significant differences between agriculture short course and degree students on two sub scales of the Work Beliefs Check-list. Short course students scored lower on Positive versus Negative Evaluation of Change and Positive versus Negative Evaluation of Physical Mobility.
3. There is a significant difference between agriculture short course and degree students in their degree of dogmatism as measured by the Rokeach Dogmatism Scale, Form E. Short course students are more dogmatic than degree students.
4. There is a significant difference between agriculture short course and degree students in their occupational aspiration level as measured by the Occupational Aspiration Scale.

Short course students do not hold aspirations as high as degree students.

5. There are significant differences between agriculture short course and degree students on College Qualification Test scores. Short course students score lower on all three sub scores, verbal, informational, and numerical.

Sociological Factors

This section presented data from the agriculture short course and degree student populations on twelve selected sociological factors thought to be related to educational achievement and educational and vocational advisement. The data were tabulated and the results discussed briefly. Statistical tests of the null hypotheses revealed the following significant findings:

1. There is a significant difference between agriculture short course and degree students in regard to their fathers' level of education. Fathers of short course students complete fewer years of school.
2. There is a significant difference between agriculture short course and degree students' fathers in regard to their occupations. Over one-half the fathers of short course students are farmers and only 4 per cent are professionals while only one-third of the fathers of degree students are farmers and 16 per cent are professionals.
3. There is a significant difference between the agriculture short course and degree students' fathers in regard to their income levels. Non-farmer fathers' incomes differ; degree students' non-farmer fathers have more income.

4. There is a significant difference between agriculture short course and degree students in regard to the location of their homes. More short course than degree students live on farms.
5. There is a significant difference between agriculture short course and degree students in regard to their occupational choice crystallization. More short course than degree students have made a definite decision about their future occupations.
6. There is a significant difference between agriculture short course and degree students in the perceived encouragement they received from their parents to attend either a short course or degree program. Degree students receive almost no encouragement to attend short courses and are greatly encouraged to attend degree programs while short course students are encouraged to attend both programs.
7. There is a significant difference between agriculture short course and degree students in regard to the number of years of vocational agriculture courses completed in high school. Short course students average almost three years completed while degree students average one year of vocational agriculture.
8. There is a significant difference between agriculture short course and degree students in regard to the number of job experiences they have had outside of their major area of study. Degree students have had more varied jobs than short course students.

9. There is a significant difference between agriculture short course and degree students in regard to their preference for working with ideas, machines, animals, people, or plants. Working with animals is most favored by both groups. More short course than degree students prefer to work with machines while proportionately more degree than short course students prefer to work with people.

CHAPTER V

SUMMARY, CONCLUSIONS AND DISCUSSION, AND RECOMMENDATIONS

Summary

Purpose and Procedure

The purpose of this study was to make a comparative descriptive study of two types of College of Agriculture students. Agriculture short course students and agriculture degree students were studied using selected psychological and sociological factors as indices of comparison. Only those factors thought to be related to educational achievement and educational and vocational advisement were employed. Valid up-to-date information concerning short course students should facilitate more accurate and realistic evaluation of their potential abilities, aspirations, and academic and non-academic needs than was previously possible. Such data relevant to degree students is also needed to maximize their growth and development during the years they are in college. However, the central focus of this study was upon the characteristics and needs of agriculture short course students.

The subjects studied were agriculture students enrolled in the Michigan State University College of Agriculture during the fall of 1964. They consisted of two populations of students. The short course population consisted of 176 first-year students. The degree population consisted of 199 first-year students. No female, transfer, or foreign students were included in the populations. Only students enrolled during the fall term of 1964 for their first post high school educational

experience were included.

Data were gathered from the students on five psychological and twelve sociological factors. Personality traits were measured by the Sixteen Personality Factor Test. The Michigan State University Work Beliefs Check-list was employed to reveal beliefs and attitudes concerning work in the urban-industrial world. The Rokeach Dogmatism Scale, Form E was utilized to quantify the degree of openness or closedness of the individual's belief system. Level of occupational aspiration was measured by the Occupational Aspiration Scale. Academic aptitude was determined by the College Qualification Test. Data concerning the sociological factors were gathered through the use of a biographical questionnaire developed by the investigator.

Data collection meetings were held during the first few days the students were on campus. Persistent follow up procedures during the first seven weeks of the fall term resulted in obtaining complete data from all 176 short course students and from 197 of 199 degree students.

Student scores and responses were coded and recorded on IBM cards. The data were then processed through the Michigan State University 3600 Computer according to previously prepared Analysis of Contingency Tables and Correlation programs. The Chi Square Test and the Unit Normal Curve Probability or "Z" Test were used to determine whether differences noted reached the .05 level of significance.

Even though this study dealt with two complete populations, sampling statistics were used to test significant findings in the hope that the results of the study would prove more useful when the conclusions reached could be generalized to a larger population.

The problem of comparing the two populations was approached by employing forty-two statistical or null hypotheses. The instruments used did differentiate between the two populations. Significant differences were revealed in the data related to all five psychological factors and in nine of the twelve sociological factors. Certain limitations inherent in the instruments were identified and caution was used in drawing conclusions from the findings.

Findings

The data reveal the following significant findings related to the psychological factors:

1. Significant differences between agriculture short course and degree students are apparent on three traits measured by the Sixteen Personality Factor Test. Short course students, when compared to degree students, scored lower on General Intelligence versus Mental Defect and on Emotional Stability or Ego Strength versus General Neuroticism. They scored higher on Worrying Suspiciousness versus Calm Trustful.

2. Significant differences between agriculture short course and degree students exist in their beliefs regarding work. Short course students neither value physical mobility in a work career nor do they appreciate change from old ways to new ways within the world of work as much as degree students.

3. Agriculture short course students are significantly more dogmatic or closed-minded in their belief systems than degree students.

4. Agriculture short course students hold significantly lower levels of occupational aspiration than degree students.

5. Agriculture short course students have less academic aptitude than degree students.

The data reveal the following significant differences related to the sociological factors:

1. Fathers of agriculture short course students complete fewer years of school than fathers of degree students.

2. Fathers of agriculture short course students are more often engaged in farming or non-professional occupations than fathers of degree students.

3. Non-farmer fathers of agriculture short course students have less income than non-farmer fathers of degree students.

4. Significantly more agriculture short course students than degree students reside in rural homes, and more degree students than short course students reside in cities over 10,000 in population.

5. Significantly more agriculture short course students than degree students have made a definite occupational choice by the time they enroll in college.

6. Agriculture short course students receive parental encouragement to enroll in either a short course or college degree program while degree students only receive encouragement to enroll in a college degree program.

7. Agriculture short course students enroll in vocational agriculture courses while in high school more often than degree students.

8. Agriculture short course students have significantly fewer job experiences outside their study area in the field of agriculture than degree students.

9. Although both agriculture short course and degree students indicate a primary preference for working with animals, short course students exhibit a stronger secondary preference for working with machines instead of people than degree students.

Conclusions and Discussion

It seems evident from the findings of this investigation that the two types of students studied are from distinctly different populations. Significant differences between agriculture short course and degree students extend from home and parental influences to personality structures and academic aptitudes. In addition to the differences adjudged significant at the .05 level, there are several other comparisons which indicate strong possibilities of important differences. The statistical evidence and tendencies related to the psychological and sociological factors are discussed below.

Although this study was not conducted in order to suggest specific and detailed suggestions dealing with student personnel policies, curricular offerings or teaching methodology, some general conclusions related to these topics seem appropriate. The major emphasis will be directed toward the short course population in drawing conclusions from the data.

1. Agriculture short course students are more in need of counseling leading to greater emotional and social maturity than agriculture degree students. This is concluded from the statistical differences between scores on factors B, C, and O of the Sixteen Personality Factor Test found in Tables 19, 20, and 29 of Appendix B which show that agriculture short course students have less general intelligence than degree students, less emotional stability or ego strength and are more likely to be worried, anxious, and suspicious.

Factors F and Q_2, although differing at only the .07 and .06 levels of significance, show that short course students also tend to be desurgent, glum, silent, and incommunicative as well as dependent,

conventional, and cautious.[1]

Support for the notion that agriculture short course students are less emotionally mature and lack self-confidence is also found in other Sixteen Personality Factor Test data. Short course students, while chronologically older than degree students, the mean ages are 18.4 years and 18.1 years respectively,[2] are not as socially mature. The difference in emotional maturity may be explained by seemingly related factors such as the degree of dogmatism, parental educational and vocational influence, and access to occupational and social experiences in urban-industrial situations away from the farm or small city.

The process of maturation involves establishing a degree of independence in social interaction, and short course students do not appear to have the ability to establish themselves as independent social participants to the extent that degree students do. Therefore, the need for guidance in developing greater social maturation is more crucial among short course students than degree students. This is supported by the fact that short course students score lower on measures related to socialization skills such as independent self-sufficiency, frustration tolerance, and ego strength.

2. Agriculture short course students need to be better acquainted with the necessity for changes within individual occupational roles and the advantages available to those who are physically mobile in their pursuit of work.

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[1]Descriptive terms taken from the Sixteen Personality Factor Test Manual may be found in Appendix A, pages 119 through 121.

[2]Table 48 on page 153 of Appendix B contains data about the ages of both populations.

Short course students seem to have acquired the work beliefs most typical of extended-kinship type families in differing on two of the six work beliefs areas.[1] They look less favorably upon physical mobility, the ability and willingness to move from one's home situation to obtain employment elsewhere, and upon change, the acceptance of new or different methods of accomplishing work. Since the opportunity to enter farming is becoming less available, and since most new jobs are now found in urban-industrial areas, short course boys who live on the farm should be encouraged to re-evaluate the concept of physical mobility.

Among those who enter farming and related occupations, a positive attitude toward technological change is also essential. Society is oriented to progress and change and whenever certain members of society such as farmers fail to accept and even encourage change, they are in a disadvantageous position to compete economically in urban-industrial society.

Short course and degree students who negate the value of physical mobility and change apparently consider the advantages of formal education more important than their opposing beliefs. These opposing beliefs limit the learning of new ideas or new ways of doing ordinary tasks. Courses featuring expanded programs of vocational information and advisement and modern techniques within agriculture industries are needed. Negative attitudes toward change in general, and physical mobility, or leaving familiar surroundings, seem to be consistent with

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[1]The extended-kinship versus nuclear type family continuum of beliefs is explained on page 39 of Chapter III.

immature and dependent personality characteristics. Personal counseling and selective extra curricular activities to develop mature participants in society should contribute to removing fears and fixations which limit the work potential and adjustment of short course students.

3. Agriculture short course and degree students require different approaches to classroom instruction.

Dogmatism or closedness of the mind affects a person's ability to learn certain types of information according to studies reviewed in Chapter II. Short course students have a group mean score higher than any student group mean score reported by Rokeach (89) or in the studies reviewed in Chapter II. This can be interpreted to mean that agriculture short course students are highly dogmatic and probably unable to evaluate new ideas objectively.

The ability or the willingness to learn theoretical or philosophical ideas is hindered by a closed mind. Dogmatic persons are most able to learn factual materials from concrete illustrations and demonstrations. Subject matter will determine to some extent the selection of the best method of teaching; however, the lecture method seems less likely to be successful with short course students than with degree students. Similarly, argumentation, debate, and class discussion would have less value for short course students.

Agriculture short course and degree students do not prefer to work with ideas but rather with animals, machines, and people which seem to be more directly related to their vocational goals than ideas.

The preferences to work with animals and machines can be explained in part because the agriculture degree and short course programs

are vocationally oriented toward these types of work. The relatively small proportion of each group, only 11 per cent, who favored working with ideas is noteworthy. It seems to support the concept that closed minded people will be averse to new ideas and beliefs. While such aversion to new ideas seems to be a more antithetic view of degree programs, which attempt to broaden student perspectives through prescribed basic courses, than it does the short course programs, it would seem to require some remedial efforts with both types of students to promote enjoyment and appreciation for work dealing with ideas.

College education is a liberalizing experience for most people. Since short course students are more dogmatic and are in coursework for only four academic terms or less, it is reasonable to conclude that such a short college experience cannot entirely offset the effects of previous environments. Courses directed toward opening and broadening the perspectives of short course students seem likely to have a profound effect upon their intellectual development.

4. Agriculture short course students need more vocational counseling than the average student in order to raise their levels of occupational aspiration and to insure that their vocational career choices will be made on the basis of objective and realistic information.

Studies reviewed in Chapter II indicate that the number of farms and the size of the rural population is declining. It is reasonable to assume that at least some of the short course students aspiring to farming careers will not be able to farm. Because of lower aspiration levels and lack of training in other occupations, these students will be unemployable or in a very disadvantageous position in the urban-industrial labor market.

In view of the findings related to academic aptitude and the association of prestigeful occupations with educational achievement, lower aspiration levels among short course students are not unexpected. However, some researchers and theorists who have studied level of aspiration, in general, have espoused the view that it is actually a personality trait. This is postulated because of the strong degree of ego involvement inherent in the level of aspiration. The lower level of occupational aspiration and relatively less ego strength of short course students lends some support to this hypothesis.

Other theorists maintain that vocational aspirations are the result of work experience, observation, and expectation. The fewer number of job experiences, the limited occupational observation possibilities on the farm or in the small city, and the parents' lower educational aspiration for the short course students add credence to this theory.

More short course students have made a decision concerning their occupational choice prior to enrollment in their college program. These decisions may be untried fantasies rather than rational choices. They may be the result of the limited scope of tentative occupational roles which were available on a farm or in a small town.

Studies reviewed in Chapter II indicate that farm reared boys, 68.18 per cent of the short course students come from farm homes, do not receive parental vocational counseling or varied work experience to the same extent that urban reared boys do. Job experiences which contribute to a knowledgeable basis for making occupational choices are fewer among short course students. The responsibilities on a family farm often preclude adequate trials of non-farm jobs by farm

boys. Although they may work at a variety of jobs on the farm, the lack of off-the-farm job experience impairs comparative occupational choice possibilities. The comparison of work experiences points out the need among short course students for vocational advisement and information concerning possible occupational opportunities.

Lower levels of occupational aspiration, whether caused by personality constructs or environmental conditions, restrict the range of occupations which short course students will consider for careers. Similarly, educational goals or skills training which seem acceptable to short course students may be limited by a narrow perspective of future occupational choices. Vocational advisement and information to elevate aspirations and broaden occupational perspectives is needed.

5. It can also be concluded that because of the substantial differences between agriculture short course and degree students in regard to academic aptitude, short course students require different teaching materials and methods, different evaluative processes, and more educational advisement than degree students.

Since the two student populations differ significantly in terms of their academic aptitude, adjustments should be made in their academic programs. In coursework where competition and progress are gauged by means of skills measured by the College Qualification Test the short course student cannot compete on an equal basis with the degree student. Therefore, it seems unreasonable to include both types of students in the same class.

Several explanations for the academic aptitude differences between the two groups are possible. University admission requirements

restrict the range of scores for degree students. Although degree students are not usually given the College Qualification Test until after they arrive on campus, the screening procedures which include emphasis on high grades, counselor recommendations, and other test scores, have eliminated many potentially low scorers. The short course population range is usually not similarly restricted. The minimum admission requirement in most cases is a high school diploma.

The educational preparation of short course students in high school may be partially responsible for the academic aptitude differences which appear on the College Qualification test. Conflicts involving vocational agriculture courses and college preparatory courses are not uncommon in smaller urban and rural high schools. In electing to take vocational agriculture courses short course students may have precluded the possibility of qualifying for admission to a degree program. However, the greater number of years of high school vocational agriculture completed by short course students as compared to degree students, 2.56 years to 1.19 years, should be considered in teaching basic agriculture theory and skills. Short course students are more advanced in basic subject material and coursework for them should begin at an advanced level.

Less ability to read and understand tests, deficient educational backgrounds, lower parental aspiration for their children, higher degrees of dogmatism, and restrictive attitudes toward learning new ideas have all probably contributed to the lower academic aptitude of short course students. Studies reviewed in Chapter II revealed these factors have adversely affected educational achievement among similar subjects.

6. It seems reasonable to conclude that the educational aspirations of the sons are substantially affected by the attitudes and desires of the parents and the fathers in particular. Fathers and mothers rank first and second respectively in the amount of influence students attribute to their closest adult contacts.[1]

The educational levels and occupations of the fathers of agriculture short course and degree students are related to the educational program selection of the sons. The educational levels and occupations of the mothers apparently have no association with the sons' program selections. Since educational program selection is directly concerned with occupational career choices, the influence of the father may again be the crucial factor in choosing to follow an agricultural career. Evidence partially supporting the theory that sons follow their fathers into similar occupations was discussed on page 82 dealing with the occupational aspirations and choices of students.

The income of fathers of agriculture short course and degree students who do not farm is also related to the educational program selection of the sons. However, the values of the farms operated by fathers who farm apparently has no effect on the educational program selection of the sons.

Income differentials indicating ability to give financial support are not necessarily indicative of willingness to give financial support. Degree students' fathers are more able and willing to support sons in post high school educational training than short course students' fathers. Almost one half of the short course students

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[1]See Table 47, page 152 for data on influences.

received less than 30 per cent of their educational expenses from their parents as compared to about one-third of the degree students.

Farmer fathers of both populations were approximately equally able to support sons in either short course or degree programs if operating farms of equal value is indicative of equal income. However, 59 per cent of their sons chose a short course program which indicates that variables other than money influence the choice of which program to follow.

The overwhelming support of degree programs among degree students' parents as compared to the almost total lack of support for a short course program presents a vivid example of parental influence and parental aspiration. Only 7 per cent of the degree students' parents encouraged their sons to attend short courses while 87 per cent encouraged attendance in a degree program. The relatively lower value degree parents place on short courses is a reflection of their aspirations for their sons to achieve a higher prestige level occupation than short course training offers.

7. Home locations of agriculture short course and degree students are related to educational aspiration.

The location of a student's home affects his choice of a vocation which in turn affects his educational plans. Fifty-nine per cent of the students living on a farm or who have lived on a farm elected to pursue a short course program. It is reasonable to conclude that educational and vocational aspiration are similarly affected by home location. A farm background apparently contributes to lower educational aspirations. From studies reviewed in Chapter II, residence is also related to personality and in the case of farm youth may contribute to a lack of emotional or social maturity.

Composite Description of A Typical Agriculture Short Course Student

A brief composite description of a typical first-year agriculture short course student and a typical first-year agriculture degree student will serve to illustrate some of the similarities in and differences between the two populations examined in this study.

The typical first-year short course student is the oldest boy in his family and lives on a farm. His father earns a living operating the farm which is valued at approximately $85,000. His mother is a housewife. Both parents are high school graduates. His parents encouraged him to enroll in either a college degree or short course program and are contributing about one-third of the money required for him to attend.

The typical first-year short course student had previously enrolled for two and one-half years of vocational agriculture coursework in high school and has already decided to be a farmer or to go into some agriculturally related business. He prefers to work with animals, machines, and people, in that order.

When the short course student is compared with agriculture degree students, several different psychological characteristics are noticeable. The most distinctive difference is that the typical short course student is comparatively immature. He depends upon others for help in making decisions. Even though he needs help from others, he is likely to view advice suspiciously or reject it altogether because he tends to have a mind which is closed to new ideas and theories. This may account in part for the fact that he scores lower on scholastic aptitude tests than do agriculture degree students.

By the time he enrolls in college he has decided to be a farmer or work with farmers. Perhaps because he has made up his mind so early in life, and so firmly, he now dislikes change. Change or physical mobility which would take him away from what he knows are not rated highly in his value system. Long range financial goals are not as desirable to him as immediate gratification. His vocational plans include rather low prestige but rewarding and useful occupations.

Composite Description of a Typical Agriculture Degree Student

The typical first-year agriculture degree student is the oldest boy in his family and lives in an urban or suburban area. His father earns about $9,876 per year in a non-farm occupation. His mother is a housewife. Both parents are high school graduates and probably have had some college experience. The parents encouraged attendance in a college degree program but did not support a short course program. They contribute more than one-half of the money for his college expenses.

The first-year degree student had enrolled for one year of vocational agriculture in high school. He had not made a definite occupational decision at the time he first enrolled in college. He will likely not choose farming but will choose an occupation related to agriculture in some fashion. He prefers to work with animals, people, and machines, in that order.

When first-year short course students are used as a group with which to compare the first-year degree student, several different psychological characteristics are noticeable. Degree students are

more emotionally mature. They have at least a modicum of self-confidence and independence. The degree student is relatively more adaptable, enthusiastic, and imaginative than the short course student. He is assertive but not highly dogmatic. New approaches to problems, new ideas, and new theories are viewed with less prejudice and are less likely to be rejected because they entail change.

The degree student views change within occupations and physical mobility to new occupations favorably. Perhaps because of a more open-minded approach to life, he has delayed making a definite occupational choice. He has eliminated several occupational choices, such as farming, but is still in doubt as to the final choice.

The typical degree student measures higher on academic aptitude or intelligence tests than the short course student. He also will score higher on measures of relative maturity, occupational aspirations, and positive evaluation of change and physical mobility. He scores lower on measures of dogmatism. Further efforts to understand the relationships of these factors and the differences between short course and degree students are suggested in the following recommendations.

Recommendations for Further Research

This study has analyzed a variety of psychological and sociological factors thought to be related to educational achievement and education and vocational advisement in an effort to describe differences between agriculture short course and degree students. Research which might further advance the description of these differences and clarify their causes would be most useful. In addition, the number of psychological and sociological factors in need of further study is by no means exhausted. The findings of this study suggest consideration of further research in this area.

1. Some way should be developed to establish clearly why farm and rural youth have lower levels of academic aptitude, lower occupational aspirations, higher levels of dogmatism, and opposition to changing ways or locations of work.
2. Efforts to study remedial processes dealing with the unfavorable characteristics among farm and rural students described in the above recommendation would contribute to the extension and conduct of other studies, teaching methods, and techniques of counseling with these students.
3. Because parents are acknowledged to be influential with their children, efforts to study the effect of parental encouragement should be made.
4. Vocational counseling for both types of students is appropriate. In the case of short course students varied counseling methodology should be tried and evaluated.
5. Instructional techniques, materials, and course objectives and evaluative processes should be critically examined to determine which types will best suit the abilities and needs of both student populations.
6. Historical research to evaluate the efficacy of both agriculture degree and short course programs should be undertaken through follow-up studies of graduates and dropouts.
7. Further study of the two populations may be particularly useful where additional groups are included for comparation. High school classmates of the agriculture degree and short course students would be an example of one group with which useful comparisons could be made.

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APPENDIX A

MICHIGAN STATE UNIVERSITY EAST LANSING

COLLEGE OF AGRICULTURE • OFFICE OF THE DIRECTOR OF RESIDENT INSTRUCTION

September 15, 1964

Dear Student:

We have underway a research project designed to study freshmen and short course students enrolled in the College of Agriculture. We are seeking reliable information about our students, from our students, so that decisions on the policies and practices of the College, in regard to your educational training, may be of the greatest benefit to you.

Your help will involve the completion of questionnaires and will require about one hour of your time. I realize the demands of time and effort that are made upon students during their first few weeks in school. However, this is of the utmost importance to you and to us.

Two meetings have been scheduled for those who have been to a summer counseling clinic and you are asked to report to the appropriate one.

According to your last name:

Boye-Lowet) and Rolg-Seyk)	8:15 a.m., Monday, September 28, Anthony Hall, Room 110
A-Boyd) and Mar-Rolf) and Seyl-Zz)	2:15 p.m., Monday, September 28, Anthony Hall, Room 110

Should you find it impossible to attend the designated one, you may attend the one for all non-counseling clinic students on Tuesday evening, October 6, at 7:30 pm in Room 110 Anthony Hall. In any research study it is important to get a true picture and this can only be accomplished by responses from all of our students.

Thank you for your cooperation. Your contribution will aid us, yourself, and future students.

Sincerely,

Dr. R. M. Swenson
Director of Resident Instruction
College of Agriculture

MICHIGAN STATE UNIVERSITY EAST LANSING

COLLEGE OF AGRICULTURE · OFFICE OF THE DIRECTOR OF RESIDENT INSTRUCTION

October 12, 1964

TO: New Freshmen and Transfer Students in the College of Agriculture

FROM: Richard M. Swenson

Dear Student:

We need your help. It is of the utmost importance to you and to the College of Agriculture research project that everyone selected in the research sample participate in the project. Two meetings have been held previously. Perhaps you did not receive a notice of the meeting, or due to other commitments, were unable to keep the appointment.

The information needed will not require an excessive amount of your time. The resulting data will ultimately contribute to your education through a better understanding of all students among the faculty and staff.

I sincerely hope that you can see the importance of this research and will be present at the meeting scheduled for Thursday, October 15, at 7:00 p.m., in Room 110 Anthony Hall. Off-campus students and anyone who cannot attend because of class conflicts may come to Room 120 Agricultural Hall between 8:00 a.m. and 5:00 p.m. on Friday, October 16, or Monday, October 19.

Again, all Freshmen and Transfer Students who have not attended and participated in the College of Agriculture Research Project meetings will meet - -

Thursday, October 15, 1964

7:00 p.m.

Room 110 - Anthony Hall

Thank you for your cooperation.

Sincerely yours,

Richard M. Swenson
Director

RMS:b

MICHIGAN STATE UNIVERSITY EAST LANSING

COLLEGE OF AGRICULTURE · OFFICE OF THE DIRECTOR OF RESIDENT INSTRUCTION

November 5, 1964

TO: New Freshmen Students in the College of Agriculture

FROM: Richard M. Swenson

Dear Student:

We need your help. It is of the utmost importance to you and to the College of Agriculture research project that everyone attending Michigan State University for the first time participate in this project. Three previous meetings have been held. Perhaps you did not receive a notice of the meeting, or due to other commitments, were unable to keep the appointment.

The information needed will not require an excessive amount of your time. The resulting data will ultimately contribute to your education through a better understanding of all students among the faculty and staff. I sincerely hope that you can see the importance of this research, and will come to my office no later than Friday, November 20 and complete the required questionnaires.

I trust that you will attend to this matter as soon as possible. We need 100% participation in this project, if we are to secure meaningful and accurate results.

Thank you for your cooperation.

Sincerely yours,

Richard M. Swenson
Director

RMS:b

College of Agriculture Research Project

In all aspects of education there must be a conscientious and continuous effort to improve. You as a student have recognized this need. Your college has also recognized that it must keep abreast of new trends and new students. This project is a part of a continuous evaluation process. Here we are seeking reliable information and honest opinions. The decisions resulting from the consideration of your replies will be of benefit to you and future students.

Instructions

You should receive a copy of:

1. Biographical Information Blank
2. Occupational Aspiration Scale
3. MSU Work Beliefs Checklist
4. A 40 item Opinion List (6 point agree to disagree scale)
5. 16 PF Booklet and answer sheet (there is a limited number of these and you may share a booklet or receive one after someone else finishes with one).

Each instrument has specific instructions at the top of the first page. READ THEM CAREFULLY. Be sure to put your name and student number at the top of each instrument. They are needed to identify those who have not completed the instruments and for no other reason. (See capitalized paragraph below)

Read all questions completely; some have two parts.

Decide on the best answer you can give and put it down. There are no right or wrong answers.

There is no time limit. Don't rush yourself needlessly. It is more important to do a complete job than to finish fast. When you think you are through, check to see if you have omitted any responses.

YOUR ANSWERS TO ALL QUESTIONS ARE ABSOLUTELY CONFIDENTIAL AND WILL NEVER BE RELEASED TO ANYONE IN A FORM WHICH COULD POSSIBLY BE IDENTIFIED WITH YOU. THE DATA IS TREATED AS RESEARCH DATA AND WILL BE PUBLISHED IN THE FORM OF GROUP NORMS, PERCENTAGES, AND FREQUENCY TABLES.

If you have specific questions, need a pencil, or need information, please raise your hand and the supervisor will assist you.

16 P.F. Read instructions on front of booklet. Do not mark on the booklet or tear off the smaple answer sheet. Your 200 item answer sheet is not the official copyrighted answer sheet. Substitute the letters from the booklet (A,B,C) for whatever three letters you find on your answer sheet. There is no space for the sample questions so disregard marking them.

O.A.S. Place an X on the blank to the left of your occupational choice.

40 item Opinion List. Place the number of the answer from the key on the blank to the left.

MSU Work Beliefs Checklist. Circle agree or disagree.

When you have completed all the instruments and carefully checked them over, you may turn in your papers and leave.

NAME_____ STUDENT NUMBER _____

BIOGRAPHICAL INFORMATION BLANK

THERE IS NO TIME LIMIT. READ ALL QUESTIONS CAREFULLY AND COMPLETELY. ANSWER THEM AS ACCURATELY AS YOU POSSIBLY CAN. ALL OF YOUR ANSWERS WILL BE TREATED AS STRICTLY CONFIDENTIAL RESEARCH DATA.

DRAW A CIRCLE AROUND THE WORD ANSWER OR NUMBER IN FRONT OF THE ANSWER YOU CHOOSE FOR MULTIPLE CHOICE QUESTIONS OR WRITE IN ANSWERS WHERE BLANKS ARE PROVIDED. DO NOT OMIT ANY QUESTIONS. IF YOU HAVE ANY QUESTIONS PLEASE ASK THE SUPERVISOR.

4. Year graduated from high school: '64, '63, '62, '61, '60 or before
5. Age: 17, 18, 19, 20, 21, 22, 23, 24, over 24
6. What is your father's or guardian's main occupation? (circle one number)
   1. Farmer - owner (owns most of acreage farmed)
   2. Farmer - employee or renter
   3. Small business owner
   4. Small business employee
   5. Professional - such as teacher, lawyer, etc.
   6. Factory worker, trucker, mechanic, etc.
   7. Carpenter, plumber, electrician, construction worker, etc.
   8. Governmental employee
   9. Retired, pensioned
   0. Deceased or other

7. Father's second job
   1. None
   ___. Number of classification from question 6 above
   _____ If not readily comparable to 6 above write in exact descriptive title of second job.

8. If your father farms: Estimated total farm value
   1. less than $10,000
   2. $10,000 to 29,999
   3. $30,000 to 49,999
   4. $50,000 to 69,999
   5. $70,000 to 89,999
   6. $90,000 to 109,999
   7. $110,000 to 129,999
   8. $130,000 to 149,999
   9. $150,000 and above

9. If your father <u>does not</u> farm: Estimated yearly income before taxes
   1. less than $2,000
   2. $2,000 to 3,499
   3. $3,500 to 4,999
   4. $5,000 to 6,999
   5. $7,000 to 8,999
   6. $9,000 to 10,999
   7. $11,000 to 14,999
   8. $15,000 to 19,999
   9. $20,000 and above

10. What is your mother's main occupation?
    1. housewife
    2. teacher
    3. restaurant employee
    4. office worker
    5. salesman
    6. day worker (house work,etc,)
    7. self employed business woman
    8. nurse
    9. other
    10. deceased

11. Father's education: circle years of school completed
    8 9 10 11 12 13 14 15 16 less than 8
12. Mother's education:
    8 9 10 11 12 13 14 15 16 less than 8
13. Circle the number of older brothers you have:
    1 2 3 4 5 6 7 8 9 0
14. Do your parents: own their home, rent, other

15. If your parents own their home, circle its approximate value.
    1. under $4,999
    2. $5,000 to 7,499
    3. $7,500 to 9,999
    4. $10,000 to 12,499
    5. $12,500 to 14,999
    6. $15,000 to 17,499
    7. $17,500 to 24,999
    8. $25,000 and above

16. Do you own (or now buying) your own car? YES NO

17. What is the location of your home?
    1. farm
    2. in country - non farm
    3. town under 1,000
    4. town between 1,001-1,999
    5. town 2,000 to 4,999
    6. city 5,000 to 9,999
    7. city 10,000 to 49,999
    8. city 50,000 and above

18. If you <u>are not</u> living on a farm now, did you ever live on a farm? YES NO

19. Did your high school have a full time counselor? YES NO

20. Do you think he or she had an accurate and realistic picture of the opportunities in your chosen field? YES NO HAD NONE (FULL TIME)

21. How much help was your counselor to you in supplying you with information related to your chosen occupation?
    great help some help little help no help

22. What <u>three</u> persons influenced you most in your decision to come to college?
    1. father
    2. mother
    3. vocational agriculture teacher
    4. high school counselor
    5. a friend or friends
    6. close relative
    7. county agent or staff
    8. clergyman
    9. high school teacher
    10. college teacher

23. Have you decided definitely on an occupational career?
    1. yes - farming
    2. yes - agriculture business
    3. yes - agriculture services
    4. yes - agriculture education
    5. yes - non-agriculture related
    6. yes - agriculture related but other
    7. yes - but not definite field
    8. NO

24. If you are not sure of an occupation career, what are your first two possible choices in order of preference.
    1. _____ 2. _____

25. Did your parents encourage you to attend Short Courses? YES NO
    Four year college? YES NO

26. What per cent of the expenses for your college training are being supplied by your parents?
    less than 30% 31-49% 50-74% 75%-84% 85-94% over 95%

27. Do you plan to work with your parents after you finish college? YES NO
    Have you a definite agreement to do so? YES NO

28. What level of education do you feel farmers need today?
    1. college degree
    2. some college
    3. Short Course type of training
    4. high school
    5. other _____

29. Should Short Course and Regular College students be together in the same classes? YES NO DON'T KNOW

30. From what you have been told or experienced, do you think Regular College students feel or act as if they thought they were better than Short Course students? YES NO DON'T KNOW

31. What one person influenced you the most to come to college? _____

32. Circle the number of years of vocational agriculture taken in high school:
    1 2 3 4 none

33. Are you thinking or planning on getting more education after you complete your present program? YES NO DON'T KNOW

34. Do you think that your parents will help you in getting your first job? YES NO DON'T KNOW

35. What do you think the average man in your occupation will be earning in 1970?

1. under $5,000	5. $8,000 to 9,000
2. $5,000 to 6,000	6. $9,000 to 10,000
3. $6,000 to 7,000	7. $10,000 to 15,000
4. $7,000 to 8,000	8. $15,000 and above

36. How many kinds of jobs have you had, for at least a summer, which were different from your major area of study? 1 2 3 4 5 6 7 8

37. Do you know someone on the faculty to whom you can go for help if you have a problem? YES NO

38. Do you think that the information you received about MSU was:

1. very accurate	4. not generally right
2. generally right	5. all wrong
3. ½ right and ½ wrong	6. don't know

39. Would you consider enrolling in extension courses of the same content, taught by competent instructors, if they were offered near your home? YES NO DON'T KNOW

40. Assuming the courses were the same, the instructors equally capable, and the expenses equal which would you prefer?
1. attending community college and living at home
2. attending community college and living away from home
3. attending extension classes and living at home
4. attending MSU and living at home
5. attending MSU and living on campus

41. Do you think that having an orientation day, specially for new students entering your program, during the summer would be:

1. very good idea	4. unecessary
2. undecided	5. bad idea
3. a good idea	6. don't know

42. What is your first impression of MSU?

1. like it very much	4. dislike it
2. like it	5. dislike it very much
3. undecided	6. don't know

43. Does your father feel he has enough educational training for his occupation? YES NO Do you agree with him? YES NO

44. What suggestions do you have for the University or the College which would help you during your first few days on campus?

---

45. Would you classify farmers as:
1. liberal thinkers 2. moderates 3. conservatives

46. Should teachers unionize? YES NO Should farmers unionize? YES NO

47. Do you prefer to work with: ideas, machines, animals, people, plants

48. Do you think that your friends approved of you coming to college? YES NO DON'T KNOW

Occupational Aspiration Scale

The Occupational Aspiration Scale is copyrighted by Dr. Archibald O. Haller. It was reproduced and used in this study with Dr. Haller's permission.

The scale has eight questions which are scored the same. There are ten alternatives for each question, and only one alternative may be checked. The scores for each alternative are as follows:

Alternative	Score
1	7
2	4
3	8
4	2
5	9
6	0
7	6
8	3
9	5
10	1

The total score is the sum of the scores for each of the eight questions. A copy of the Scale follows on succeeding pages.

YOUR NAME_____ Student Number _____

OCCUPATIONAL ASPIRATION SCALE

THIS SET OF QUESTIONS CONCERNS YOUR INTEREST IN DIFFERENT KINDS OF JOBS. THERE ARE EIGHT QUESTIONS. EACH ONE ASKS YOU TO CHOOSE ONE JOB OUT OF TEN PRESENTED.

BE SURE YOUR NAME IS ON THE TOP OF THIS PAGE.
READ EACH QUESTION CAREFULLY. THEY ARE ALL DIFFERENT.
ANSWER EACH ONE THE BEST YOU CAN. DON'T OMIT ANY.

Question 1. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

11_____ Lawyer
12_____ Welfare worker for a city government
13_____ United States representative in Congress
14_____ Corporal in the Army
15_____ United States Supreme Court Justice
16_____ Night watchman
17_____ Sociologist
18_____ Policeman
19_____ County agricultural agent
110_____ Filling station attendant

Question 2. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

21_____ Member of the board of directors of a large corporation
22_____ Undertaker
23_____ Banker
24_____ Machine operator in a factory
25_____ Physician (doctor)
26_____ Clothes presser in a laundry
27_____ Accountant for a large business
28_____ Railroad conductor
29_____ Railroad engineer
210_____ Singer in a night club

Question 3. Of the jobs listed in this question which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

31_____ Nuclear physicist
32_____ Reporter for a daily newspaper
33_____ County judge
34_____ Barber
35_____ State governor
36_____ Soda fountain clerk
37_____ Biologist
38_____ Mail carrier
39_____ Official of an international labor union
310_____ Farm Hand

Question 4. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

41_____ Psychologist
42_____ Manager of a small store in a city
43_____ Head of a department in state government
44_____ Clerk in a store
45_____ Cabinet member in the federal government
46_____ Janitor
47_____ Musician in a symphony orchestra
48_____ Carpenter
49_____ Radio announcer
410_____ Coal miner

Question 5. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

51_____ Civil engineer
52_____ Bookkeeper
53_____ Minister or Priest
54_____ Streetcar motorman or city busdriver
55_____ Diplomat in the United States Foreign Service
56_____ Share cropper (one who owns no livestock or farm machinery, and does not manage the farm)
57_____ Author of novels
58_____ Plumber
59_____ Newspaper columnist
510_____ Taxi driver

Question 6. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

61_____ Airline pilot
62_____ Insurance agent
63_____ Architect
64_____ Milk route man
65_____ Mayor of a large city
66_____ Garbage collecter
67_____ Captain in the army
68_____ Garage mechanic
69_____ Owner-operator of a printing shop
610_____ Railroad section hand

Question 7. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

71_____ Artist who paints pictures that are exhibited in galleries
72_____ Traveling salesman for a wholesale concern
73_____ Chemist
74_____ Truck driver
75_____ College professor
76_____ Street sweeper
77_____ Building contractor
78_____ Local official of a labor union
79_____ Electrician
710_____ Restaurant waiter

Question 8. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

81_____ Owner of a factory that employs about 100 people
82_____ Playground director
83_____ Dentist
84_____ Lumberjack
85_____ Scientist
86_____ Shoeshiner
87_____ Public school teacher
88_____ Owner-operator of a lunch stand
89_____ Trained machinist
810_____ Dock worker

YOUR NAME_____

The MSU Work Beliefs Check-List and Key[1]

Instructions:

This check-list is made up of statements people often say they believe. You will probably find that you agree with some and disagree with others. If you agree with a statement, circle Agree; if you disagree with a statement, circle Disagree. Do not omit any.

Be sure your name is on the top of this sheet.

11	The only purpose of working is to make money.	Agree	Disagree
12	I believe a man needs to work in order to feel that he has a real place in the world.	Agree	Disagree
13	I feel sorry for people whose jobs require that they take orders from others.	Agree	Disagree
14	Every man should have a job that gives him a steady income.	Agree	Disagree
15	The happiest men are those who work only when they need money.	Agree	Disagree
16	Doing a good job day in and day out is one of the most satisfying experiences a man can have.	Agree	Disagree
17	A regular job is good for one.	Agree	Disagree
18	I feel sorry for rich people who never learn how good it is to have a steady job.	Agree	Disagree
21	I don't like people who are always right on time for every appointment they have.	Agree	Disagree
22	I feel sorry for people who have to do the same thing every day at the same time.	Agree	Disagree
23	I don't like to have to make appointments.	Agree	Disagree
24	I believe that promptness is a virtue.	Agree	Disagree

[1]Scoring Key (Tentative 1957-1960. Underlined responses are scored one point; all others are scored zero points. There is a score for each sub-area, six scores in all.

25	I usually schedule my activities.	**Agree**	Disagree
26	I'd rather let things happen in their own way rather than scheduling them by a clock.	Agree	**Disagree**
27	It makes me feel bad to be late for an appointment.	**Agree**	Disagree
28	I expect people who have appointments with me to be right on time.	**Agree**	Disagree
31	I would be unhappy living away from my relatives.	Agree	**Disagree**
32	I hope to move away from here within the next few years.	**Agree**	Disagree
33	People who can't leave their hometowns are hard for me to understand.	**Agree**	Disagree
34	A man's first loyalty should be to his home community.	Agree	**Disagree**
35	When a boy becomes a man, he should leave home.	**Agree**	Disagree
36	I like to see new things and meet new people.	**Agree**	Disagree
41	I like to try new things.	**Agree**	Disagree
42	On the whole, the old ways of doing things are the best.	Agree	**Disagree**
43	Life would be boring without new experiences.	**Agree**	Disagree
44	I like people who are willing to change.	**Agree**	Disagree
45	On the whole, most changes make things worse.	Agree	**Disagree**
46	The happiest people are those who do things the way their parents did.	Agree	**Disagree**
47	New things are usually better than old things.	**Agree**	Disagree
51	I believe that a person can get anything he wants if he's willing to work for it.	**Agree**	Disagree
52	Man should not work too hard, for his fortune is in the hands of God.	Agree	**Disagree**
53	A man shouldn't work too hard because it won't do him any good unless luck is with him.	Agree	**Disagree**
54	With a little luck I believe I can do almost anything I really want to do.	**Agree**	Disagree

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55	A person shouldn't hope for much in this life.	Agree	Disagree
56	If a man can't better himself it's his own fault.	Agree	Disagree
57	Practically everything I try to do turns out well for me.	Agree	Disagree
58	I usually fail when I try something important.	Agree	Disagree
61	I would rather work than go to school.	Agree	Disagree
62	Money is made to spend, not to save.	Agree	Disagree
63	I think there's something wrong with people who go to school for years when they could be out earning a living.	Agree	Disagree
64	One gains more in the long run if he studies than if he gets a job.	Agree	Disagree
65	The more school a person gets the better off he is.	Agree	Disagree
66	Generally speaking, things one works hard for are the best.	Agree	Disagree
67	When I get a little extra money I usually spend it.	Agree	Disagree

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ROKEACH DOGMATISM SCALE, FORM E[1]

Name_____

The following is a study of what the general public thinks about a number of important social and personal questions. The best answer to the statements below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others. Whether you agree or disagree with any statement, you can be sure that many other people feel the same way you do.

In the blank column to the left of each statement, mark each statement according to how much you agree or disagree with it according to the following key:

Key: 1. I AGREE VERY MUCH
2. I AGREE PRETTY MUCH
3. I AGREE A LITTLE
4. I DISAGREE A LITTLE
5. I DISAGREE PRETTY MUCH
6. I DISAGREE VERY MUCH

Please mark every one.

Example: College students should not be allowed to drive cars on campus.

If you AGREE VERY MUCH, you would write in a "1" in the blank at the left:

1 College students should not be allowed to drive cars on campus

_____ 1. A person who thinks primarily of his own happiness is beneath contempt.

_____ 2. The main thing in life is for a person to want to do something important.

_____ 3. In a discussion, I often find it necessary to repeat myself several times to make sure I am being understood.

_____ 4. Most people just don't know what's good for them.

_____ 5. In times like these, a person must be pretty selfish if he considers his own happiness primarily.

_____ 6. A man who does not believe in some great cause has not really lived.

_____ 7. I'd like it if I could find someone who would tell me how to solve my personal problems.

_____ 8. Of all the different philosophies which have existed in this world, there is probably only one which is correct.

_____ 9. It is when a person devotes himself to an ideal or cause that his life becomes meaningful.

_____ 10. In this complicated world of ours, the only way we can know what is going on is to rely upon leaders or experts who can be trusted.

_____ 11. There are a number of persons I have come to hate because of the things they stand for.

_____ 12. There is so much to be done and so little time to do it in.

_____ 13. It is better to be a dead hero than a/live coward.

_____ 14. A group which tolerates too much difference of opinion among its own members cannot exist for long.

[1]This instrument did not have a title when it was completed by the students.

Key: 1. I AGREE VERY MUCH
2. I AGREE PRETTY MUCH
3. I AGREE A LITTLE
4. I DISAGREE A LITTLE
5. I DISAGREE PRETTY MUCH
6. I DISAGREE VERY MUCH

_____15. It is only natural that a person should have a much better acquaintance with ideas he believes in than with ideas he opposes.

_____16. While I don't like to admit this even to myself, I sometimes have the ambition to become a great man, like Einstein, or Beethoven, or Shakespeare.

_____17. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary at times to restrict the freedom of certain political groups.

_____18. If a man is to accomplish his mission in life, it is sometimes necessary to gamble "all or nothing at all."

_____19. Most people just don't give a "damn" about others.

_____20. Any person who gets enthusiastic about a number of causes is likely to be a pretty wishy-washy sort of person.

_____21. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

_____22. If given the chance, I would do something that would be of great benefit to the world.

_____23. In times like these, it is often necessary to be more on guard against ideas put out by certain people or groups in one's own camp than by those in the opposing camp.

_____24. In a heated discussion I usually become so absorbed in what I am going to say that I forget to listen to what the others are saying.

_____25. Once I get wound up in a heated discussion, I just can't stop.

_____26. There are two kinds of people in this world; those who are on the side of truth, and those who are against it.

_____27. Man on his own is a helpless and miserable creature.

_____28. The United States and Russia have just about nothing in common.

_____29. In the history of mankind there have probably been just a handful of really great thinkers.

_____30. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

_____31. The present is all too often full of unhappiness; it is the future that counts.

_____32. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what is going on.

_____33. Fundamentally, the world we live in is a pretty lonely place.

Key: 1. I AGREE VERY MUCH
2. I AGREE PRETTY MUCH
3. I AGREE A LITTLE
4. I DISAGREE A LITTLE
5. I DISAGREE PRETTY MUCH
6. I DISAGREE VERY MUCH

_____34. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

_____35. The worst crime a person can commit is to attack publicly the people who believe in the same thing he does.

_____36. In the long run, the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

_____37. Most of the ideas that get published nowadays aren't worth the paper they are printed on.

_____38. It is only natural for a person to be rather fearful of the future.

_____39. My blood boils whenever a person stubbornly refuses to admit he's wrong.

_____40. When it comes to differences of opinion in religion, we must be careful not to compromise with those who believe differently from the way we do.

The following scoring system is used to determine a total score from the alternatives selected for forty questions.

Score	Alternative
7	1. I agree very much
6	2. I agree pretty much
5	3. I agree a little
3	4. I disagree a little
2	5. I disagree pretty much
1	6. I disagree very much

Total scores range from 40 to 280.

SIXTEEN PERSONALITY FACTOR TEST

The Sixteen Personality Factor test is copyrighted by the Institute for Personality and Ability Testing. The test instrument is not included here; however, a brief description of the traits associated with each factor of the Sixteen Personality Factor test is included below. The terms, titles, and descriptions are condensed from the 16 P.F. Manual and a text by Dr. Raymond B. Cattell, author of the instrument (19) (17).

Factor A. Cyclothmia (high score) versus Schizothymia (low score)

easy going, good natured	obstructive, spiteful
adaptable in habits	inflexible, rigid
warm hearted, attentive to people	cool, aloof, indifferent
cooperative	hostile
work dealing with people	work dealing with things or words

Factor B. General Intelligence versus Mental Defect

smart, assertive	dull, sluggish
perservering	quitting
quick to grasp ideas	slow learner
successful in exams and classwork	less successful

Factor C. Emotional Stability or Ego Strength versus General Neuroticism

emotionally mature	lacking frustration tolerance
realistic about life	evasive, immature
emotionally stable	changeable
placid, unworried	worrying, anxious
active in leadership roles	impulsive channels of action

Factor E. Dominance or Ascendance versus Submission

assertive, self assured	submissive
aggressive, pugnacious	complacent, quiet
hard, stern	kindly, soft hearted
attention getting	self sufficient

Factor F. Surgency versus Desurgency

enthusiastic	glum, silent
cheerful, joyful	depressed, pessimistic
energetic, quick and alert	subdued, lanquid, slow
frank, expressive	incommunicative, smug
occupations without precision or detail	occupations requiring close, accurate work

Factor G. Positive Character versus Immature Dependent Character

conscientious	weakness of character
perservering, determined	quitting, fickle
responsible	frivolous, immature
attentive to people	neglectful of social chores
honesty in schoolwork	unscrupulous

Factor H. Adventurous Cyclothymia versus Inherent Withdrawn

like meeting people	withdrawn
adventurous	shy, timid
gregarious, genial	aloof, self contained
friendly	hostile
tends to be leader	recoils from life

Factor I. Emotional Sensitivity versus Tough Maturity

demanding, impatient	emotionally mature
dependent	independent
kindly, gentle	hard, cynical
aesthetically fastidious	lacking artistic feelint
imaginative introspective	set, smug

Factor L. Paranoid Schizothymia versus Trustful Accessibility

suspicious	trustful
jealous	free of jealous tendencies
hard and unconcerned	concerned about people
short tempered, critical	easy going, genial
self opinionated	composed

Factor M. Bohemianism versus Practical Concernedness

unconventional, eccentric	conventional
sensitively imaginative	practical and logical
undependable	conscientious
not group participant	anxious to do right thing
occasionally upset	poised, tough control

Factor N. Sophistication versus Rough Simplicity

polished, socially skillful	socially clumsy
cool, aloof	attentive to people
exacting mind	vague sentimental mind
insightful regarding others	naive
insightful regarding self	lacking self insight

Factor O. Worrying Suspiciousness versus Calm Trustful

worrying, anxious	self-confident, placid
suspicious, brooding	free from suspiciousness
lonely, discouraged	self-sufficient, spirited
feeling of inadequacy	self-confident

Factor Q_1. Radicalism versus Conservatism

introspective	self satisfied and cautious
intellectual interests	not intellectually inquisitive
inclined to experiment in life	opposed to change

Factor Q_2. Independent Self-Sufficiency versus Lack of Resolution (Dependent)

independent, resolute	dependent, non-decisive
makes own decisions	prefers shared decisions
originating actions	conventional, cautious

Factor Q_3. Will Control versus Lack of Character Stability

High scorers tend to have strong control of emotions and behavior, to be considerate, conscientious, and careful but occasionally obstinate. There are indications that high scorers have more mathematical interests than others. Effective leaders score higher.

Factor Q_4. Nervous Tension

High scorers tend to be tense, restless, fretful, excited, and impatient. They can perhaps best be characterized as hypertensive since they are often fatigues but unable to remain inactive. They take a poor view of group unity, orderliness, and leadership.

APPENDIX B

TABLE 18: Distribution of scores of agriculture short course and degree students on Factor A: Cyclothymia versus Schizothymia, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	4.00	16.00	28.00	53.00	38.00	22.00	10.00	3.00	1.00	1.00	**8.23	3.12
Pct. Across	2.27	9.09	15.91	30.11	21.59	12.50	5.68	1.70	.57	.57		
Theoret. Freq.	3.77	14.63	25.95	50.96	37.75	26.90	10.38	3.77	1.42	.47		
Chi Square	.01	.13	.16	.08	.00	.89	.01	.16	.12	.59		
Degree Students	4.00	15.00	27.00	55.00	42.00	35.00	12.00	5.00	2.00	.00	**8.61	3.08
Pct. Across	2.03	7.61	13.71	27.92	21.32	17.77	6.09	2.54	1.02	.00		
Theoret. Freq.	4.23	16.37	29.05	57.04	42.25	30.10	11.62	4.23	1.58	.53		
Chi Square	.01	.12	.14	.07	.00	.80	.01	.14	.11	.53		

*Chi Square = 4.098, degrees of freedom = 9, significant at .95 level.
**Z = 1.206, significant at .23 level.

TABLE 19: Distribution of scores of agriculture short course and degree students on Factor B: General Intelligence versus Mental Defect, of the Sixteen Personality Factor Test.*

	SCORES											
	00-02	3-4	5-6	7-8	9-11	12-14	15-17	18-20	21-23	24-26	Mean	S.D.
Short Course Students	1.00	19.00	59.00	72.00	24.00	1.00	.00	.00	.00	.00	**6.74	1.79
Pct. Across	.57	10.80	33.52	40.91	13.64	.57	.00	.00	.00	.00		
Theoret. Freq.	.47	15.57	47.18	64.64	44.83	3.30	.00	.00	.00	.00		
Chi Square	.59	.76	2.96	.84	9.68	1.61	.00	.00	.00	.00		
Degree Students	.00	14.00	41.00	65.00	71.00	6.00	.00	.00	.00	.00	**7.81	1.97
Pct. Across	.00	7.11	20.81	32.99	36.04	3.05	.00	.00	.00	.00		
Theoret. Freq.	.53	17.43	52.82	72.36	50.17	3.70	.00	.00	.00	.00		
Chi Square	.53	.67	2.64	.75	8.64	1.43	.00	.00	.00	.00		

*Chi Square = 31.096, degrees of freedom = 5, significant at .001 level.
**Z = 5.531, significant at .001 level.

TABLE 20: Distribution of scores of agriculture short course and degree students on Factor C: Emotional Stability versus General Neuroticism, of the Sixteen Personality Factor Test.*

	SCORES											
	00-03	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	1.00	1.00	2.00	6.00	22.00	40.00	34.00	41.00	28.00	1.00	**15.35	3.23
Pct. Across	.57	.57	1.14	3.41	12.50	22.73	19.32	23.30	15.91	.57		
Theoret. Freq.	.47	.47	.94	8.49	16.51	35.86	32.09	40.11	36.33	4.72		
Chi Square	.59	.59	1.18	.73	1.82	.48	.11	.02	1.91	2.93		
Degree Students	.00	.00	.00	12.00	13.00	36.00	34.00	44.00	49.00	9.00	**16.49	3.56
Pct. Across	.00	.00	.00	6.09	6.60	18.27	17.26	22.34	24.87	4.57		
Theoret. Freq.	.53	.53	1.06	9.51	18.49	40.14	35.91	44.89	40.67	5.28		
Chi Square	.53	.53	1.06	.65	1.63	.43	.10	.02	1.71	2.62		

*Chi Square = 19.638, degrees of freedom = 9, significant at .05 level.

TABLE 21: Distribution of scores of agriculture short course and degree students on Factor E: Dominance or Ascendance versus Submission, of the Sixteen Personality Factor Test.*

	SCORES											
	0-3	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	.00	5.00	22.00	32.00	28.00	40.00	24.00	16.00	9.00	.00	**12.49	3.58
Pct. Across	.00	2.84	12.50	18.18	15.91	22.73	13.64	9.09	5.11	.00		
Theoret. Freq.	.94	5.19	16.04	30.20	31.14	39.16	25.95	17.46	9.91	.00		
Chi Square	.94	.01	2.21	.11	.32	.02	.15	.12	.08	.00		
Degree Students	2.00	6.00	12.00	32.00	38.00	43.00	31.00	21.00	12.00	.00	**12.84	3.74
Pct. Across	1.02	3.05	6.09	16.24	19.29	21.83	15.74	10.66	6.09	.00		
Theoret. Freq.	1.06	5.81	17.96	33.80	34.86	43.84	29.05	19.54	11.09	.00		
Chi Square	.84	.01	1.98	.10	.28	.02	.13	.11	.07	.00		

TABLE 22: Distribution of scores of agriculture short course and degree students on Factor F: Surgency versus Desurgency, of the Sixteen Personality Factor Test.*

	SCORES											
	0-3	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	2.00	3.00	4.00	12.00	35.00	30.00	29.00	33.00	26.00	2.00	**14.61	3.85
Pct. Across	1.14	1.70	2.27	6.82	19.89	17.05	16.48	18.75	14.77	1.14		
Theoret. Freq.	1.42	4.25	5.19	8.49	29.73	29.73	28.78	33.50	31.14	3.77		
Chi Square	.24	.37	.27	1.45	.94	.00	.00	.01	.85	.83		
Degree Students	1.00	6.00	7.00	6.00	28.00	33.00	32.00	38.00	40.00	6.00	**15.38	4.20
Pct. Across	.51	3.05	3.55	3.05	14.21	16.75	16.24	19.29	20.30	3.05		
Theoret. Freq.	1.58	4.75	5.81	9.51	33.27	33.27	32.22	37.50	34.86	4.23		
Chi Square	.22	.33	.24	1.29	.84	.00	.00	.01	.76	.75		

*Chi Square = 9.389, degrees of freedom = 9, significant at .40 level.

TABLE 23: Distribution of scores of agriculture short course and degree students on Factor G: Positive Character versus Immature Dependent Character, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	.00	1.00	1.00	8.00	30.00	44.00	43.00	30.00	17.00	2.00	**12.76	2.84
Pct. Across	.00	.57	.57	4.55	17.05	25.00	24.43	17.05	9.66	1.14		
Theoret. Freq.	.00	.47	3.30	13.68	30.67	34.45	41.05	31.14	17.93	3.30		
Chi Square	.00	.59	1.61	2.36	.01	2.65	.09	.04	.05	.51		
Degree Students	.00	.00	6.00	21.00	35.00	29.00	44.00	36.00	21.00	5.00	**12.59	3.38
Pct. Across	.00	.00	3.05	10.66	17.77	14.72	22.34	18.27	10.66	2.54		
Theoret. Freq.	.00	.53	3.70	15.32	34.33	38.55	45.95	34.86	20.07	3.70		
Chi Square	.00	.53	1.43	2.11	.01	2.37	.08	.04	.04	.46		

TABLE 24: Distribution of scores of agriculture short course and degree students on Factor H: Adventurous Cyclothymia versus Inherent Withdrawn, of the Sixteen Personality Factor Test.*

	SCORES											
	0-3	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	8.00	17.00	21.00	26.00	35.00	25.00	23.00	12.00	7.00	2.00	**11.33	4.49
Pct. Across	4.55	9.66	11.93	14.77	19.89	14.20	13.07	6.82	3.98	1.14		
Theoret. Freq.	8.49	18.87	20.76	27.84	30.67	20.76	23.59	12.74	9.91	2.36		
Chi Square	.03	.19	.00	.12	.61	.87	.01	.04	.85	.05		
Degree Students	10.00	23.00	23.00	33.00	30.00	19.00	27.00	15.00	14.00	3.00	**11.55	4.99
Pct. Across	5.08	11.68	11.68	16.75	15.23	9.64	13.71	7.61	7.11	1.52		
Theoret. Freq.	9.51	21.13	23.24	31.16	34.33	23.24	26.41	14.26	11.09	2.64		
Chi Square	.03	.17	.00	.11	.55	.77	.01	.04	.76	.05		

TABLE 25: Distribution of scores of agriculture short course and degree students on Factor I: Emotional Sensitivity versus Tough Maturity, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	5.00	17.00	32.00	54.00	38.00	20.00	6.00	4.00	.00	.00	**7.90	2.85
Pct. Across	2.84	9.66	18.18	30.68	21.59	11.36	3.41	2.27	.00	.00		
Theoret. Freq.	4.25	19.35	33.03	49.07	39.64	21.23	6.61	2.83	.00	.00		
Chi Square	.13	.28	.03	.49	.07	.07	.06	.48	.00	.00		
Degree Students	4.00	24.00	38.00	50.00	46.00	25.00	8.00	2.00	.00	.00	**7.80	2.84
Pct. Across	2.03	12.18	19.29	25.38	23.35	12.69	4.06	1.02	.00	.00		
Theoret. Freq.	4.75	21.65	36.97	54.93	44.36	23.77	7.39	3.17	.00	.00		
Chi Square	.12	.25	.03	.44	.06	.06	.05	.43	.00	.00		

TABLE 26: Distribution of scores of agriculture short course and degree students on Factor L: Paranoid Schizothymia versus Trustful Accessibility, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	1.00	6.00	24.00	44.00	35.00	40.00	20.00	6.00	.00	.00	**9.38	2.98
Pct. Across	.57	3.41	13.64	25.00	19.89	22.73	11.36	3.41	.00	.00		
Theoret. Freq.	1.89	6.13	24.06	41.05	34.92	41.05	18.40	7.55	.94	.00		
Chi Square	.42	.00	.00	.21	.00	.03	.14	.32	.94	.00		
Degree Students	3.00	7.00	27.00	43.00	39.00	47.00	19.00	10.00	2.00	.00	**9.42	3.21
Pct. Across	1.52	3.55	13.71	21.83	19.80	23.86	9.64	5.08	1.02	.00		
Theoret. Freq.	2.11	6.87	26.94	45.95	39.08	45.95	20.60	8.45	1.06	.00		
Chi Square	.37	.00	.00	.19	.00	.02	.12	.28	.84	.00		

TABLE 27: Distribution of scores of agriculture short course and degree students on Factor M: Bohemianism versus Practical Concernedness, of the Sixteen Personality Factor Test.*

	SCORES											
	0-3	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	.00	14.00	31.00	43.00	40.00	24.00	19.00	5.00	.00	.00	**10.69	3.00
Pct. Across	.00	7.95	17.61	24.43	22.73	13.64	10.80	2.84	.00	.00		
Theoret. Freq.	.47	14.16	28.78	40.11	39.16	30.20	16.51	5.19	1.42	.00		
Chi Square	.47	.00	.17	.21	.02	1.27	.37	.01	1.42	.00		
Degree Students	1.00	16.00	30.00	42.00	43.00	40.00	16.00	6.00	3.00	.00	**10.96	3.24
Pct. Across	.51	8.12	15.23	21.32	21.83	20.30	8.12	3.05	1.52	.00		
Theoret. Freq.	.53	15.84	32.22	44.89	43.84	33.80	18.49	5.81	1.58	.00		
Chi Square	.42	.00	.15	.19	.02	1.14	.33	.01	1.26	.00		

TABLE 28: Distribution of scores of agriculture short course and degree students on Factor N: Sophistication versus Rough Simplicity, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	.00	.00	9.00	21.00	54.00	64.00	21.00	7.00	.00	.00	**10.52	2.23
Pct. Across	.00	.00	5.11	11.93	30.68	36.36	11.93	3.98	.00	.00		
Theoret. Freq.	.00	.47	8.49	24.54	55.21	56.62	23.12	7.08	.47	.00		
Chi Square	.00	.47	.03	.51	.03	.96	.19	.00	.47	.00		
Degree Students	.00	1.00	9.00	31.00	63.00	56.00	28.00	8.00	1.00	.00	**10.44	2.40
Pct. Across	.00	.51	4.57	15.74	31.98	28.43	14.21	4.06	.51	.00		
Theoret. Freq.	.00	.53	9.51	27.46	61.79	63.38	25.88	7.92	.53	.00		
Chi Square	.00	.42	.03	.46	.02	.86	.17	.00	.42	.00		

TABLE 29: Distribution of scores of agriculture short course and degree students on Factor O: Worrying Suspiciousness versus Calm Trustful, of the Sixteen Personality Factor Test.*

	SCORES											
	0-3	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	3.00	12.00	22.00	38.00	41.00	37.00	17.00	4.00	1.00	1.00	**11.06	3.31
Pct. Across	1.70	6.82	12.50	21.59	23.30	21.02	9.66	2.27	.57	.57		
Theoret. Freq.	3.77	18.40	26.90	34.92	37.75	32.09	14.16	7.08	.47	.47		
Chi Square	.16	2.23	.89	.27	.28	.75	.57	1.34	.59	.59		
Degree Students	5.00	27.00	35.00	36.00	39.00	31.00	13.00	11.00	.00	.00	**10.25	3.56
Pct. Across	2.54	13.71	17.77	18.27	19.80	15.74	6.60	5.58	.00	.00		
Theoret. Freq.	4.23	20.60	30.10	39.08	42.25	35.91	15.84	7.92	.53	.53		
Chi Square	.14	1.99	.80	.24	.25	.67	.51	1.20	.53	.53		

TABLE 30: Distribution of scores of agriculture short course and degree students on Factor Q_1: Radicalism versus Conservatism, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	.00	2.00	21.00	52.00	46.00	39.00	11.00	5.00	.00	.00	**9.27	2.54
Pct. Across	.00	1.14	11.93	29.55	26.14	22.16	6.25	2.84	.00	.00		
Theoret. Freq.	.47	4.25	21.71	45.30	52.85	34.92	11.32	4.72	.47	.00		
Chi Square	.47	1.19	.02	.99	.89	.48	.01	.02	.47	.00		
Degree Students	1.00	7.00	25.00	44.00	66.00	35.00	13.00	5.00	1.00	.00	**9.16	2.73
Pct. Across	.51	3.55	12.69	22.34	33.50	17.77	6.60	2.54	.51	.00		
Theoret. Freq.	.53	4.75	24.29	50.70	59.15	39.08	12.68	5.28	.53	.00		
Chi Square	.42	1.06	.02	.89	.79	.43	.01	.02	.42	.00		

TABLE 31: Distribution of scores of agriculture short course and degree students on Factor Q_2: Independent Self-Sufficiency versus Lack of Resolution, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	.00	4.00	24.00	42.00	43.00	32.00	20.00	8.00	3.00	.00	**9.63	3.02
Pct. Across	.00	2.27	13.64	23.86	24.43	18.18	11.36	4.55	1.70	.00		
Theoret. Freq.	.47	3.30	19.82	36.33	47.18	32.56	22.65	8.02	4.25	1.42		
Chi Square	.47	.15	.88	.88	.37	.01	.31	.00	.37	1.42		
Degree Students	1.00	3.00	18.00	35.00	57.00	37.00	28.00	9.00	6.00	3.00	**10.25	3.26
Pct. Across	.51	1.52	9.14	17.77	28.93	18.78	14.21	4.57	3.05	1.52		
Theoret. Freq.	.53	3.70	22.18	40.67	52.82	36.44	25.35	8.98	4.75	1.58		
Chi Square	.42	.13	.79	.79	.33	.01	.28	.00	.33	1.26		

TABLE 32: Distribution of scores of agriculture short course and degree students on Factor Q_3: Will Control versus Lack of Character Stability, of the Sixteen Personality Factor Test.*

	SCORES											
	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Mean	S.D.
Short Course Students	.00	2.00	11.00	38.00	52.00	38.00	24.00	9.00	2.00	.00	**10.11	2.75
Pct. Across	.00	1.14	6.25	21.59	29.55	21.59	13.64	5.11	1.14	.00		
Theoret. Freq.	.47	3.30	10.38	37.75	54.26	36.33	22.18	9.44	1.89	.00		
Chi Square	.47	.51	.04	.00	.09	.08	.15	.02	.01	.00		
Degree Students	1.00	5.00	11.00	42.00	63.00	39.00	23.00	11.00	2.00	.00	**9.96	2.80
Pct. Across	.51	2.54	5.58	21.32	31.98	19.80	11.68	5.58	1.02	.00		
Theoret. Freq.	.53	3.70	11.62	42.25	60.74	40.67	24.82	10.56	2.11	.00		
Chi Square	.42	.46	.03	.00	.08	.07	.13	.02	.01	.00		

TABLE 33: Distribution of scores of agriculture short course and degree students on Factor Q_4: Nervous Tension, of the Sixteen Personality Factor Test.*

	SCORES											
	0-3	4-6	7-8	9-10	11-12	13-14	15-16	17-18	19-22	23-26	Mean	S.D.
Short Course Students	3.00	8.00	11.00	26.00	27.00	36.00	25.00	23.00	15.00	2.00	**13.19	4.31
Pct. Across	1.70	4.55	6.25	14.77	15.34	20.45	14.20	13.07	8.52	1.14		
Theoret. Freq.	3.30	12.27	15.10	22.18	25.01	32.09	30.67	18.87	13.68	2.83		
Chi Square	.03	1.48	1.11	.66	.16	.48	1.05	.90	.13	.24		
Degree Students	4.00	18.00	21.00	21.00	26.00	32.00	40.00	17.00	14.00	4.00	**12.57	4.70
Pct. Across	2.03	9.14	10.66	10.66	13.20	16.24	20.30	8.63	7.11	2.03		
Theoret. Freq.	3.70	13.73	16.90	24.82	27.99	35.91	34.33	21.13	15.32	3.17		
Chi Square	.02	1.33	.99	.59	.14	.43	.94	.81	.11	.22		

TABLE 34: Distribution of scores of agriculture short course and degree students on Belief One: Expressive versus instrumental value of work, of the Michigan State University Work Beliefs Checklist.*

	SCORES										
	0	1	2	3	4	5	6	7	8	Mean	S.D.
Short Course Students	.00	.00	.00	.00	3.00	15.00	37.00	85.00	36.00	**6.77	.93
Pct. Across	.00	.00	.00	.00	1.70	8.52	21.02	48.30	20.45		
Theoret. Freq.	.00	.00	.47	.47	2.83	14.63	39.16	77.86	40.58		
Chi Square	.00	.00	.47	.47	.01	.01	.12	.66	.52		
Degree Students	.00	.00	1.00	1.00	3.00	16.00	46.00	80.00	50.00	**6.77	1.05
Pct. Across	.00	.00	.51	.51	1.52	8.12	23.35	40.61	25.38		
Theoret. Freq.	.00	.00	.53	.53	3.17	16.37	43.84	87.14	45.42		
Chi Square	.00	.00	.42	.42	.01	.01	.11	.59	.46		

TABLE 35: Distribution of scores of agriculture short course and degree students on Belief Two: Positive versus negative evaluation of structured time, of the Michigan State University Work Beliefs Check-list.*

	SCORES										
	0	1	2	3	4	5	6	7	8	Mean	S.D.
Short Course Students	.00	.00	2.00	4.00	16.00	31.00	42.00	54.00	27.00	**6.14	1.36
Pct. Across	.00	.00	1.14	2.27	9.09	17.61	23.86	30.68	15.34		
Theoret. Freq.	.47	.94	1.89	4.25	16.04	30.67	41.05	54.26	26.42		
Chi Square	.47	.94	.01	.01	.00	.00	.02	.00	.01		
Degree Students	1.00	2.00	2.00	5.00	18.00	34.00	45.00	61.00	29.00	**6.05	1.51
Pct. Across	.51	1.02	1.02	2.54	9.14	17.26	22.84	30.96	14.72		
Theoret. Freq.	.53	1.06	2.11	4.75	17.96	34.33	45.95	60.74	29.58		
Chi Square	.42	.84	.01	.01	.00	.00	.02	.00	.01		

TABLE 36: Distribution of scores of agriculture short course and degree students on Belief Three: Positive versus negative evaluation of physical mobility, of the Michigan State University Work Beliefs Check-list.*

	SCORES								
	0	1	2	3	4	5	6	Mean	S.D.
Short Course Students	.00	15.00	42.00	60.00	37.00	16.00	6.00	**3.09	1.21
Pct. Across	.00	8.52	23.86	34.09	21.02	9.09	3.41		
Theoret. Freq.	.00	11.80	28.78	57.57	45.30	23.12	9.44		
Chi Square	.00	.87	6.07	.10	1.52	2.19	1.25		
Degree Students	.00	10.00	19.00	62.00	59.00	33.00	14.00	**3.65	1.22
Pct. Across	.00	5.08	9.64	31.47	29.95	16.75	7.11		
Theoret. Freq.	.00	13.20	32.22	64.43	50.70	25.88	10.56		
Chi Square	.00	.78	5.42	.09	1.36	1.96	1.12		

TABLE 37: Distribution of scores of agriculture short course and degree students on Belief Four: Positive versus negative evaluation of change, of the Michigan State University Work Beliefs Check-list.*

	SCORES									
	0	1	2	3	4	5	6	7	Mean	S.D.
Short Course Students	.00	.00	.00	3.00	7.00	15.00	71.00	80.00	**6.24	.89
Pct. Across	.00	.00	.00	1.70	3.98	8.52	40.34	45.45		
Theoret. Freq.	.00	.00	.47	1.42	4.25	11.80	72.19	85.88		
Chi Square	.00	.00	.47	1.77	1.79	.87	.02	.40		
Degree Students	.00	.00	1.00	.00	2.00	10.00	82.00	102.00	**6.43	.71
Pct. Across	.00	.00	.51	.00	1.02	5.08	41.62	51.78		
Theoret. Freq.	.00	.00	.53	1.58	4.75	13.20	80.81	96.12		
Chi Square	.00	.00	.42	1.58	1.59	.78	.02	.36		

TABLE 38: Distribution of scores of agriculture short course and degree students on Belief Five: Internal versus external determination of events, of the Michigan State University Work Beliefs Check-List.*

	SCORES										
	0	1	2	3	4	5	6	7	8	Mean	S.D.
Short Course Students	.00	.00	1.00	2.00	12.00	32.00	62.00	49.00	18.00	**6.11	1.15
Pct. Across	.00	.00	.57	1.14	6.82	18.18	35.23	27.84	10.23		
Theoret. Freq.	.00	.00	.94	1.89	13.68	31.14	54.73	52.38	21.23		
Chi Square	.00	.00	.00	.01	.21	.02	.96	.22	.49		
Degree Students	.00	.00	1.00	2.00	17.00	34.00	54.00	62.00	27.00	**6.19	1.23
Pct. Across	.00	.00	.51	1.02	8.63	17.26	27.41	31.47	13.71		
Theoret. Freq.	.00	.00	1.06	2.11	15.32	34.86	61.27	58.62	23.77		
Chi Square	.00	.00	.00	.01	.19	.02	.86	.19	.44		

TABLE 39: Distribution of scores of agriculture short course and degree students on Belief Six: Positive versus negative evaluation of deferred gratification, of the Michigan State University Work Beliefs Check-list.*

	SCORES									
	0	1	2	3	4	5	6	7	8	Mean	S.D.
Short Course										
Students	.00	1.00	.00	5.00	25.00	48.00	48.00	49.00	.00	**5.61	1.17
Pct. Across	.00	.57	.00	2.84	14.20	27.27	27.27	27.84	.00		
Theoret. Freq.	.00	.94	1.42	5.66	20.29	43.41	50.49	53.79	.00		
Chi Square	.00	.00	1.42	.08	1.09	.49	.12	.43	.00		
Degree Students	.00	1.00	3.00	7.00	18.00	44.00	59.00	65.00	.00	**5.73	1.24
Pct. Across	.00	.51	1.52	3.55	9.14	22.34	29.95	32.99	.00		
Theoret. Freq.	.00	1.06	1.58	6.34	22.71	48.59	56.51	60.21	.00		
Chi Square	.00	.00	1.26	.07	.98	.43	.11	.38	.00		

TABLE 40: Distribution of scores of agriculture short course and degree students on the Verbal section of the College Qualification Test.*

	SCORES											
	00-18	19-23	24-27	28-30	31-33	34-37	38-40	41-46	47-57	58-75	Mean	S.D.
Short Course Students	40.00	25.00	27.00	19.00	12.00	21.00	6.00	15.00	7.00	4.00	**28.26	11.67
Pct. Across	22.73	14.20	15.34	10.80	6.82	11.93	3.41	8.52	3.98	2.27		
Theoret. Freq.	20.76	16.99	19.35	12.27	13.21	19.35	9.44	17.93	26.90	19.82		
Chi Square	17.83	3.78	3.03	3.69	.11	.14	1.25	.48	14.72	12.63		
Degree Students	4.00	11.00	14.00	7.00	16.00	20.00	14.00	23.00	50.00	38.00	**43.88	14.33
Pct. Across	2.03	5.58	7.11	3.55	8.12	10.15	7.11	11.68	25.38	19.29		
Theoret. Freq.	23.24	19.01	21.65	13.73	14.79	21.65	10.56	20.07	30.10	22.18		
Chi Square	15.93	3.38	2.71	3.30	.10	.13	1.12	.43	13.15	11.28		

TABLE 41: Distribution of scores of agriculture short course and degree students on the Informational section of the College Qualification Test.*

	SCORES											
	00-25	26-28	29-31	32-33	34-36	37-39	40-43	44-47	48-52	53-75	Mean	S.D.
Short Course Students	16.00	18.00	19.00	8.00	34.00	19.00	24.00	22.00	12.00	4.00	**36.48	8.44
Pct. Across	9.09	10.23	10.80	4.55	19.32	10.80	13.64	12.50	6.82	2.27		
Theoret. Freq.	7.55	9.44	9.44	4.25	20.76	15.10	22.18	25.01	28.78	33.50		
Chi Square	9.46	7.77	9.69	3.32	8.44	1.01	.15	.36	9.79	25.98		
Degree Students	.00	2.00	1.00	1.00	10.00	13.00	23.00	31.00	49.00	67.00	**49.19	8.34
Pct. Across	.00	1.02	.51	.51	5.08	6.60	11.68	15.74	24.87	34.01		
Theoret. Freq.	8.45	10.56	10.56	4.75	23.24	16.90	24.82	27.99	32.22	37.50		
Chi Square	8.45	6.94	8.66	2.96	7.54	.90	.13	.32	8.74	23.21		

TABLE 42: Distribution of scores of agriculture short course and degree students on the Numerical section of the College Qualification Test.*

	SCORES											
	00-15	16-17	18-18	19-19	20-22	23-23	24-25	26-27	28-33	34-50	Mean	S.D.
Short Course Students	62.00	25.00	7.00	8.00	35.00	5.00	9.00	8.00	7.00	10.00	**18.94	7.02
Pct. Across	35.23	14.20	3.98	4.55	19.89	2.84	5.11	4.55	3.98	5.68		
Theoret. Freq.	32.56	15.10	3.77	5.66	23.12	5.19	8.97	13.68	30.67	37.28		
Chi Square	26.63	6.49	2.76	.97	6.10	.01	.00	2.36	18.27	19.96		
Degree Students	7.00	7.00	1.00	4.00	14.00	6.00	10.00	21.00	58.00	69.00	**30.73	8.44
Pct. Across	3.55	3.55	.51	2.03	7.11	3.05	5.08	10.66	29.44	35.03		
Theoret. Freq.	36.44	16.90	4.23	6.34	25.88	5.81	10.03	15.32	34.33	41.72		
Chi Square	23.79	5.80	2.46	.86	5.45	.01	.00	2.11	16.32	17.83		

TABLE 43: Distribution of scores of agriculture short course and degree students on the College Qualification Test total score.*

	SCORES											
	00-68	69-77	78-84	85-88	89-92	93-97	98-106	107-116	117-134	135-200	Mean	S.D.
Short Course Students	46.00	26.00	20.00	13.00	15.00	11.00	22.00	13.00	8.00	2.00	**83.63	21.68
Pct. Across	26.14	14.77	11.36	7.39	8.52	6.25	12.50	7.39	4.55	1.14		
Theoret. Freq.	22.65	14.63	13.21	8.97	10.38	7.55	19.82	15.57	29.73	33.50		
Chi Square	24.08	8.84	3.49	1.82	2.06	1.58	.24	.42	15.88	29.62		
Degree Students	2.00	5.00	8.00	6.00	7.00	5.00	20.00	20.00	55.00	69.00	**123.80	25.55
Pct. Across	1.02	2.54	4.06	3.05	3.55	2.54	10.15	10.15	27.92	35.03		
Theoret. Freq.	25.35	16.37	14.79	10.03	11.62	8.45	22.18	17.43	33.27	37.50		
Chi Square	21.51	7.90	3.12	1.62	1.84	1.41	.21	.38	14.19	26.46		

TABLE 44: Second jobs of fathers of agriculture short course and degree students.*

	None	Farmer Owner	Farmer Renter	Sm.bus. Owner	Sm.bus. Employee	Profes-sional	Factory worker, Trucker, Mech.,etc.	Carp., Plumber, Elect., Const.wk.	Govt. Employee
Short Course Students	116.00	26.00	5.00	4.00	3.00	1.00	13.00	5.00	3.00
Pct. Across	65.91	14.77	2.84	2.27	1.70	.57	7.39	2.84	1.70
Theoret. Freq.	126.46	22.18	2.83	3.30	1.89	1.42	9.91	4.25	3.77
Chi Square	.86	.66	1.66	.15	.66	.12	.96	.13	.16
Degree Students	152.00	21.00	1.00	3.00	1.00	2.00	8.00	4.00	5.00
Pct. Across	77.16	10.66	.51	1.52	.51	1.02	4.06	2.03	2.54
Theoret. Freq.	141.54	24.82	3.17	3.70	2.11	1.58	11.09	4.75	4.23
Chi Square	.77	.59	1.48	.13	.59	.11	.86	.12	.14

TABLE 45: Number of agriculture short course and degree students not living on a farm who have ever lived on a farm.*

	Yes	Never	Not Appropriate	No Reply
Short Course Students	37.	28.	109.	2.00
Pct. Across	21.02	15.91	61.93	1.14
Theoret. Freq.	34.45	58.04	82.57	.94
Chi Square	.19	15.55	8.46	1.18
Degree Students	36.	95.	66.	.00
Pct. Across	18.27	48.22	33.50	00
Theoret. Freq.	38.55	64.96	92.43	1.06
Chi Square	.17	13.89	7.56	1.06

*Chi square = 48.045, degrees of freedom = 3, significant at .001 level.

TABLE 46: Per cent of educational financial expenses paid by parents of agriculture short course and degree students.*

	Less 30%	31-49	50-74	75-84	85-94	Over 95	Other	No Reply
Short Course Students	85.00	11.00	23.00	10.00	10.00	31.00	4.00	2.00
Pct. Across	48.30	6.25	13.07	5.68	5.68	17.61	2.27	1.14
Theoret. Freq.	70.78	14.16	23.12	11.32	17.93	34.92	1.89	1.89
Chi Square	2.86	.70	.00	.15	3.51	.44	2.36	.01
Degree Students	65.00	19.00	26.00	14.00	28.00	43.00	.00	2.00
Pct. Across	32.99	9.64	13.20	7.11	14.21	21.83	.00	1.02
Theoret. Freq.	79.22	15.84	25.88	12.68	20.07	39.08	2.11	2.11
Chi Square	2.55	.63	.00	.14	3.13	.39	2.11	.01

*Chi Square = 18.001, degrees of freedom = 7, significant at .01 level

TABLE 47: Three persons most influential to agriculture short course and degree students in attending short course or degree program.*

	Father	Mother	Vo-Ag.	Coun-selor	Tea-cher	Friends	Rela-tive	Co. Agt.	Clergy	Coll. Teach.	No Reply
Short Course Students Per Cent	69	65	49	15	13	38	20	6	1	5	20
Degree Students Per Cent	77	73	23	26	25	35	20	3	3	3	13

*Chi Square = 21.14, degrees of freedom = 10, significant at .03 level.

TABLE 48: Ages of agriculture short course and degree students.*

	17	18	19	20	21	22	23	Over 24	No Reply	Mean Years
Short Course Students	18.00	110.00	32.00	8.00	4.00	.00	1.00	2.00	1.00	18.35
Pct. Across	10.23	62.50	18.18	4.55	2.27	.00	.57	1.14	.57	
Theoret. Freq.	21.23	122.68	19.82	6.13	2.36	.47	1.42	.94	.94	
Chi Square	.49	1.31	7.49	.57	1.14	.47	.12	1.18	.00	
Degree Students	27.00	150.00	10.00	5.00	1.00	1.00	2.00	.00	1.00	18.05
Pct. Across	13.71	76.14	5.08	2.54	.51	.51	1.02	.00	.51	
Theoret. Freq.	23.77	137.32	22.18	6.87	2.64	.53	1.58	1.06	1.06	
Chi Square	.44	1.17	6.69	.51	1.02	.42	.11	1.06	.00	

*Chi Square = 24.198, degrees of freedom = 8, significant at .001 level.

TABLE 49: Correlation of the Sixteen Personality Factor Test scores with Work Beliefs, Dogmatism, Occupational Aspiration, and College Qualification Test scores of agriculture short course students

	PERSONALITY FACTORS															
	A	B	C	E	F	G	H	I	L	M	N	O	Q_1	Q_2	Q_3	Q_4
Work Beliefs 1	-.02	-.02	.09	-.15	.01	.09	-.03	.01	-.20	-.10	.02	.06	.02	.05	.07	-.04
2	.02	.07	.05	.01	.11	.22	.06	-.07	-.07	-.02	.09	.05	.13	-.11	.06	-.05
3	.06	.05	.16	.16	-.00	.12	.15	.10	.05	.19	-.00	-.13	.03	-.05	.09	-.02
4	-.01	.08	-.01	-.02	.11	-.06	.00	-.14	-.10	-.06	.08	-.00	.06	-.03	-.06	.06
5	.01	.01	.05	.04	.12	.02	.00	-.01	-.13	-.13	.11	-.07	-.00	-.16	.02	-.07
6	.05	.12	-.02	.04	.05	.13	-.03	-.06	.00	-.11	.02	.14	.05	-.02	.01	.07
Dogmatism	.11	-.15	-.24	-.08	-.01	-.06	-.08	.06	.16	.12	.05	.16	-.01	-.02	-.00	.13
Occup. Asp.	.14	.04	.07	.02	.04	.07	.6	.12	.02	.10	-.05	-.02	-.13	-.03	-.06	-.02
CQT Verbal	-.10	.16	.03	.20	.04	-.02	-.18	.06	.12	.06	.01	-.11	.19	.20	-.17	.03
CQT Information	.12	.14	-.03	.14	-.04	-.02	-.13	-.06	.01	-.12	.03	-.05	.16	.25	-.11	.02
CQT Numerical	-.13	.26	-.06	.11	-.07	.02	-.05	-.01	-.01	-.02	.03	-.07	.04	.09	-.18	.03
CQT Total	-.14	.23	-.01	.20	-.01	-.01	-.16	-.00	.07	-.02	.02	-.11	.17	.23	-.19	.04

TABLE 50: Correlation of the Sixteen Personality Factor Test scores with Work Beliefs, Dogmatism, Occupational Aspiration, and College Qualification Test scores of agriculture degree students.

	PERSONALITY FACTORS															
	A	B	C	E	F	G	H	I	L	M	N	O	Q_1	Q_2	Q_3	Q_4
Work Beliefs 1	-.12	.10	.15	-.16	.11	.19	.01	-.01	-.03	-.10	.05	-.06	-.08	-.16	.01	-.02
2	.07	-.04	.11	-.17	-.00	.31	.15	-.04	-.06	-.11	.19	-.03	.07	-.06	..23	-.15
3	.04	.12	-.11	.10	.05	-.21	.02	-.05	.10	.17	.01	-.05	.08	.04	-.09	-.02
4	.18	-.11	-.01	-.00	.16	.09	.16	-.13	.10	-.17	.03	-.02	.08	-.15	.06	-.03
5	.14	.07	.17	.09	.09	.22	.22	-.05	-.03	-.12	.10	-.23	.07	-.05	.16	-.10
6	-.01	.03	.13	-.14	.06	.36	.08	-.07	-.11	-.14	.13	-.17	-.14	-.15	.16	-.13
Dogmatism	.13	-.08	-.31	-.05	.02	-.03	-.14	-.00	.27	.13	-.04	.31	-.19	.01	-.09	.01
Occup. Asp.	.19	.22	.10	.09	.28	.06	.19	.04	-.04	.14	.10	-.12	.01	-.17	.08	.29
CQT Verbal	-.12	.34	.03	.17	-.05	-.19	-.07	.02	.08	.15	-.02	-.20	.15	.17	-.03	-.03
CQT Information	-.18	.34	-.00	.04	-.16	-.16	-.16	-.03	.03	.23	-.10	-.02	.12	.24	.04	.02
CQT Numerical	-.16	.23	.06	.08	-.10	.02	-.01	-.14	-.00	.04	-.00	-.10	.12	.08	.03	-.08
CQT Total	-.17	.38	.04	.13	-.12	-.15	-.09	-.04	.05	.18	-.05	-.15	.16	.20	.00	-.05

TABLE 51: Correlation among the Sixteen Personality Factor Test scores of agriculture short course and degree students.

		DEGREE STUDENTS														
		A	B	C	E	F	G	H	I	L	M	N	O	Q_1	Q_2	Q_3	Q_4
	A	.	-.10	-.16	.09	.27	.04	.35	.12	.13	.13	.13	.01	-.11	-.24	-.05	.07
	B	.01	.	.06	-.03	-.15	.01	-.12	.07	.02	.02	.04	-.18	-.09	.13	.03	-.04
	C	-.06	-.07	.	-.07	.05	.33	.24	-.12	-.23	-.27	.21	-.56	.15	-.11	.28	-.58
	E	.13	.08	.14	.	.26	-.23	.21	-.10	.06	.09	.01	-.00	-.01	-.04	-.26	.25
	F	.24	.02	.22	.44	.	.00	.48	-.15	.07	-.04	-.09	-.07	-.11	-.46	-.19	.12
SHORT	G	.10	.15	.27	-.10	.04	.	.10	-.08	-.22	-.21	.25	-.24	-.02	-.13	.25	-.26
	H	.29	.05	.44	.29	.47	.22	.	-.01	-.15	-.07	.06	-.29	-.04	-.42	.08	-.21
COURSE	I	.13	-.07	-.14	-.03	-.08	.00	-.05	.	-.02	.19	.03	.10	-.01	.02	-.09	.08
	L	.01	-.09	-.44	-.04	.03	-.30	-.33	.10	.	-.00	-.09	.17	-.03	.13	-.16	.39
STUDENTS	M	-.01	-.05	-.21	-.13	-.18	-.03	-.18	.21	.25	.	-.01	.25	.01	.18	-.08	.27
	N	.07	.05	.00	-.02	-.00	.12	.17	-.07	-.11	-.01	.	-.15	.12	.05	.31	-.17
	O	-.09	-.07	-.48	-.23	-.21	-.26	-.40	-.05	.38	.17	.01	.	-.15	.02	-.24	.53
	Q_1	.03	-.01	.04	.12	-.03	-.02	.03	.05	.02	.10	.10	.03	.	.11	.17	-.18
	Q_2	-.28	-.04	-.06	-.12	-.36	-.9	-.39	.09	.03	.15	-.01	.09	.26	.	.04	.05
	Q_3	.13	-.07	.26	-.16	-.03	.31	.29	-.03	-.38	-.13	.15	-.28	-.02	-.09	.	-.39
	Q_4	-.03	-.08	-.50	-.03	-.14	-.31	-.47	.11	.48	.30	-.12	.56	-.01	.09	-.43	.

TABLE 52: Correlation among Work Beliefs, Dogmatism, Occupational Aspiration, and College Qualification Test scores of agriculture short course and degree students.

		DEGREE STUDENTS											
		1	2	3	4	5	6	DOG.	O.A.	V	I	N	T
SHORT COURSE STUDENTS	Work Beliefs 1	.	.13	-.01	.02	.10	.21	.04	.01	-.03	-.08	.06	-.02
	2	.14	.	-.08	.18	.21	.27	-.12	.11	-.17	-.11	.00	-.13
	3	-.15	-.01	.	.25	-.06	-.05	.15	.16	.27	.15	-.07	.18
	4	.07	.20	.02	.	.04	.06	.07	.04	-.14	-.13	.01	-.12
	5	.07	.11	-.10	.25	.	.15	.01	.21	.14	.07	.15	.15
	6	.31	.22	-.03	.14	.04	.	.05	.21	-.14	-.03	-.06	-.11
	Dogmatism	.16	-.05	-.01	-.07	-.03	.02	.	.02	-.09	-.07	-.03	-.08
	Occup. Asp.	.04	.12	.07	-.12	.04	.12	-.15	.	.26	.18	.20	.27
	CQT Verbal	-.03	.10	.06	.07	.21	-.02	-.19	.15	.	.59	.40	.88
	CQT Information	.01	.05	-.04	.11	.15	.08	-.18	-.03	.61	.	.49	.82
	CQT Numerical	.03	-.00	-.04	.09	.08	.02	-.03	-.12	.28	.43	.	.72
	CQT Total	.00	.08	.00	.11	.20	.03	-.19	.04	.86	.85	.63	.