

PERSONALITY PATTERNS OF AGRICULTURAL EXTENSION  
WORKERS AS RELATED TO SELECTED ASPECTS  
OF WORK ADJUSTMENT

By

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AN ABSTRACT

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An Abstract

The Problem. This study was one phase of the General Research Project concerned with the purpose of securing information that would enable the Michigan Cooperative Extension Service to select workers who not only would be more successful in the performance of their duties but who would also be more satisfied in their work. The purpose of this particular study was, firstly, to provide a description of the personality patterns of County Agents and 4-H Club Agents in Michigan; secondly, to determine which of certain clinical scales of the Minnesota Multiphasic Personality Inventory might serve as aids in the selection of more effective and more satisfied Agents; and thirdly, to collect further normative data on the social scales of the MMPI and to examine their utility as guides for personnel selection in the Extension Service.

Method, Technique, and Data. The purpose of the first objective was realized through the presentation of an

adapted form of the MMPI to 81 County Agents and 46 4 H Club Agents in Michigan in 1951-52. The approach to the second and third objectives was essentially that of testing the significance of the difference between the MMPI scale scores of Agents falling above the mean and of MMPI scale scores of Agents falling below the mean in respect to their ratings on two work adjustment criteria, determining the intensity of these relationships and examining the extent to which accurate predictions could be made by analysis of personality profiles.

Findings and Conclusions. Results of this study indicate that:

1. The personality patterns of the County Agricultural Agents and 4 H Club Agents in Michigan are somewhat similar as measured by the MMPI.
2. In comparison with the "less effective" County Agents, the total group of "more effective" Agents obtained significantly higher scores on the Hypochondriasis and Hysteria scales.
3. The extreme group (upper quartile) of "more effective" County Agents scored significantly higher than the "less effective" group on Hypochondriasis, Hysteria, and Dominance.
4. The "less effective" group of 4 H Club Agents obtained significantly higher scores than the total group of

"more effective" Agents on the Hysteria and Status scales.

5. The "less effective" group of 4 H Club Agents obtained significantly higher scores on the extreme quartile of "more effective" Agents on the Status scale.

6. In comparison with the "less satisfied" County Agents, the "more satisfied" Agents had significantly higher mean scores on the Social Participation and Responsibility scales.

7. The total group of "more satisfied" 4 H Club Agents had neither significantly higher nor significantly lower mean scores than the "less satisfied" 4 H Club Agents.



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## CHAPTER I

### STATEMENT OF THE PROBLEM AND DEFINITION OF TERMS

Educators, psychologists and personnel managers have expressed increasing concern about the complex problem of individual adjustment to the work environment. The staggering toll of wasted lives and wasted dollars resulting from traditional "hit-or-miss" selection techniques can no longer be tolerated in a democratic society nor afforded in a free economy. To solve these problems education and business have introduced numerous techniques ranging from occupational counseling of youth to comprehensive batteries of tests employed to place the "right" individual in the "right" job. This guidance and selection is frequently based upon such factors as academic aptitude test scores, performance test scores, academic achievement and the like. However, growing doubt as to the validity of such predictors as related to occupational adjustment has been accumulating.

Considerable research has been devoted to studies of the relationship of such factors to success in college or industrial training programs. Somewhat fewer investigations have been concerned with the relationship of personalogical factors to training success while there exists a dearth of studies which attempt to determine the relationship of these determinants and criteria of actual "work adjustment." The

present research is designed to contribute to the much needed knowledge in this area.

Statement of the Problem. This particular study is one phase of the over-all research described below. It is concerned with the relationship between the personality patterns of the present Michigan Agents as delineated by certain clinical and social scales of the Minnesota Multiphasic Personality Inventory (48) and the two criteria of work adjustment, rated effectiveness and job satisfaction. The problem of this study may then be stated specifically as:

What are the personality patterns of County Extension Workers in Michigan as measured by certain clinical and social scales of the Minnesota Multiphasic Personality Inventory and what is the relationship of these personality patterns to the rated job effectiveness and self-rated job satisfaction of these workers?

The purpose of studying these relationships, in keeping with the objectives of the General Research Project<sup>1</sup> was three-fold in nature. First, it was to provide a description of the personality patterns of Michigan Agents. Second, it was to attempt to determine which of certain clinical scales of the MMPI<sup>2</sup> might serve as aids in the selection of more effective and more satisfied County Agents and 4 H Club Agents. Third, it was to collect further normative data on

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<sup>1</sup> The term "General Research Project" will hereinafter refer to the over-all Project of which this study is a phase.

<sup>2</sup> The Minnesota Multiphasic Personality Inventory will hereinafter be referred to as the MMPI.

the new social scales of the MMPI and to examine their utility as guides for personnel selection of the Extension Service.

The approach to the second and third objectives was essentially that of testing the significance of the difference between the MMPI scale scores of Agents falling above the mean and the MMPI scale scores of Agents falling below the mean in respect to their ratings on the two work adjustment criteria, determining the intensity of these relationships, and examining the extent to which accurate predictions could be made by analysis of personality profiles. These methods will be further described in detail in Chapters IV and V.

For the purpose of securing information that would be useful in improving the selection of its County Extension workers, the Michigan Cooperative Extension Service initiated a research project in 1950, the goal of which was to enable the Extension Service to select workers who not only would be more successful in the performance of their duties but who would also be more satisfied in their work. (81:29)

As a starting point in this endeavor the project design called for an analysis of the present County Agricultural Agents and 4 H Club Agents in Michigan with respect to the relationship between certain of their personal characteristics and certain criteria of their work adjustment. If some significant relationships with respect to these factors

could be found in the present Agents, and if these relationships could be validated in studies with additional Agents, this information should enable the Extension Service to improve its personnel selection procedures.

The primary criterion of work adjustment in this general research project was considered to be over-all effectiveness on the job. Supervisor ratings of the incumbent Agent population were employed as the determinant of work effectiveness in the study. In keeping with the Extension Service's ultimate goal, job satisfaction was established as an additional criterion of work adjustment. An adaptation and extension of the Hoppock Job Satisfaction Blank (53) was employed to measure the degree and amount of job satisfaction of the incumbent Agent population. Analyses were made, by a number of investigators, of the relationship between each of these criteria and the following personal factors which were believed to be inherent in the work adjustment of this group and which lend themselves to measurement and statistical analysis: (a) Stone (100) studied biographical data, including an analysis of the worker's self-concept and his concept of his job, (b) Pierson (90) investigated vocational interests, (c) Posz (91) dealt with academic factors, (d) this study is concerned with personality traits.

Importance of the Problem. Concern over the problem of devising more valid personnel selection techniques is not manifest in the Michigan Extension Service alone. The problem is

seen in such magnitude by the United States Department of Agriculture and the Office of Naval Research of the United States Navy, that they have established grants amounting to several thousands of dollars to the Extension Services in the states of New York and Missouri, as well as to Michigan for the purpose of aiding research related to the problem. (112)

The high rate of turnover and indications of dissatisfaction among County Extension Workers have prompted these federal agencies to assist in this research toward discovering a satisfactory means of coping with this problem. As the Extension worker's function has rapidly expanded in scope in the recent years, efforts to refine the process of selecting these workers have apparently not kept pace.

Rate of turnover and indications of dissatisfaction are listed by the state of Missouri among the reasons for the need of better selection technique. A turnover of 15% in the Missouri Agricultural Extension Service in 1949, prompted the observation "besides those who quit voluntarily or under pressure, there are others who are not very happy in their present work or not doing a very effective job, even though they are still in the Extension Service."

Analysis of personnel records of the Michigan Extension Service contributes supporting evidence. For the years 1948, 1949, and 1950, the average rate of turnover in County Agents and 4 H Club Agents alone averaged approximately 15%. Many of

these workers left the service for other kinds of employment, potentially indicating that some type of dissatisfaction was present. A larger proportion of 4 H Club Agents than County Agents is found in the group. This has been particularly damaging to the future of extension work in the state as 4 H Club work is considered to be valuable experience for County Agent work and the 4 H Club agent group has been the main source from which County Agents are selected. In addition, to the extent that the 4 H Agent group tends toward a lower average age, this may represent a growing trend among the younger personnel with the possible effect of diminishing the future supply of applicants for 4 H Club Agents positions as well.

The roots of the Extension Service can be traced to the earliest years of our nation (17:100) but it came into official existence with the passage of the Smith-Lever Act in 1914, and was designated as the "Cooperative Agricultural and Home Economics Extension Service." (110:195) The County Agricultural Agent has been one of the key individuals responsible for the Execution of these functions since the inception of the service.

From this vocationally oriented origin the Extension Service expanded in size and scope to the extent that in 1949 it was described as "the largest rural adult educational agency in the world." (17:113) whose objective was "more fruitful lives and better living for all people." (68:117)



Statistical substantiation of the educational accomplishments of the Service is available. Brunner and Yang determined that "In 1947, over 3.8 million farms changed one or more agricultural practices as a result of Extension teaching. This represents just about two out of every three farms, as reported by the 1945 Census of Agriculture." (17:145-149)

The 1948 report of the joint committee of the U. S. Department of Agriculture and the Association of Land-Grant Colleges and Universities on Extension Program Policies and Goals, more explicitly depicts the present extent of the program. (111:6-10) A tremendous expansion of subject-matter dealt with by the Extension Service, likewise, is revealed in a statement of problems with which the Service is concerned: (111:12)

On the community or county basis, the need for improved local health services, public school facilities, land use controls in some areas, and similar matters are typical of such problems. On the broader front are such questions as the most appropriate long-time program for agriculture, tax policies, public indebtedness in relation to public welfare, the proper role of this country in helping to maintain international stability and world peace and many others.

Even if allowance is made for the influence of other agencies that might be contributing to the welfare of rural people, a cursory review of data regarding the numbers of youth and adults who participate in extension activities, and regarding financial appropriations for this work, indicates that the Extension Service has become a major educational program in our country.

Since the Extension Service has been determined to be essentially an educational organization, teaching is implicit in its function. To date, attempts to discover more effective techniques for improving the selection of teachers have been something less than rewarding. A. S. Barr in an analysis of the research on teaching competency specified: "Although the research in this area has doubtless added materially to our understanding of desirable teacher abilities, traits, and qualities, it is apparent that the identification and definition of teaching competencies is as yet by no means satisfactory." (8:1353) However, the course of future investigation was given direction by Sanford and Trump's (93:1394) indication that "although pupil achievement is more nearly ideal, the most important factors are personality, scholarship and intelligence."

The setting in which the Extension Service worker operates and the methods by which he achieves his goals, however, are somewhat different from those of the classroom teacher. By virtue of the basic cooperative organization of the Service, the worker is responsible simultaneously to federal, state, and county agencies. (68:Ch.7) In addition, the Michigan Agent seldom conducts classes in formal courses of study, but primarily works with individuals in organized and informal groups by playing a variety of occupational roles. Stone, in a recent analysis of the way in which Michigan County Agents spend their time indicates that approximately one-third of the

time is spent in working directly with individuals, one-third in working directly with groups, and one-third in other activities such as writing, studying, and planning. (101) A further analysis (99) indicates the following approximate distribution of time spent in the major roles played by Michigan Agents in their work:

Consultant	24.32%
Public Administrator	23.52%
Salesman of information and ideas	17.40%
Organizer and supervisor of events	15.71%
Organizer of groups	7.22%
Student	6.78%
Facilitator-expeditor	5.05%

Although the objectives of the Extension Service are educational in nature, the work situation and job activities peculiar to County Extension work therefore points to the possibility that somewhat negative research findings in the selection of teachers do not necessarily indicate that some useful findings could not be determined for improving the selection of Extension Service workers.

Great impetus has been given the study of teaching success by the development of objective measures of personality in recent years. Advancing from an area in which the success factor in teaching was viewed primarily in terms of the mastery of certain skills, students of the problem began to recognize the importance of dynamics in the learning situation. Industrial and employment interviewers, guidance personnel, teachers and others became aware of numerous expressed reasons why individuals had gone to work in a particular job or succeeded in a certain career.

The evidence from research in the field was at first controversial. Many of the earlier personality questionnaires failed to reveal any consistent relationship between an individual's personality traits and his job success. With the development of more sophisticated measures, however, researchers were able to employ greater precision in personality evaluation and its application to problems of work effectiveness. Of the newer instruments, the MMPI was selected for extensive application in this area because of its apparent adaptability to a number of problems previously encountered (113) because of its clinically derived items and extensive item pool (115) and because it provided a means of internally determining the validity of a subject's responses by utilization of validating scales contained in the instrument itself. (48)

The role of the Extension worker in Michigan is many sided. In performing the functions of this changing role, the Agent is called on to teach, to sell ideas, to keep records and write reports, and above all to adjust himself to the countless number of personal differences manifested by the people he serves. Consequently administrators of the Extension Service in Michigan, in selecting new workers, must attempt to make a subjective evaluation of an applicant's abilities to fulfill these many roles as it is apparent that these abilities are essential for his success in Extension work.

Since analysis of the Extension Agent's role provides evidence that a positive relationship exists between such factors and his work effectiveness, and since research has given evidence of the role of personality and occupational differences in related areas, it is possible that this relationship is objectively defensible in the case of Extension workers.

Origins of the Study. Under the present selection procedure of the Michigan Extension Service, an applicant for the position of County Agricultural Agent or 4 H Club Agent is first interviewed by at least five Extension Service administrators, including District Extension Supervisors, the Assistant Director and the Director of the Extension Service. These administrators then reach a consensus of opinion concerning the applicant's fitness and, if the consensus is favorable, the applicant is asked to fill out an application blank which provides information about his work experiences, academic accomplishments, and other phases of personal history. Personal preferences, which the applicant gives are then contacted by mail. No specific, objective evaluation devices are employed anywhere in the selection process.

A growing awareness of the inefficiency of these methods prompted the Michigan Extension Service to obtain suggestions from other State Extension Services relative to the improvement of selection techniques. These suggestions, upon analysis, were found unapplicable to the local situation and a review of the literature by a member of the General Research Project committee (90) has revealed no studies which are di-

rected specifically at discovering or creating better methods of selecting Extension workers. Since an objective solution of this problem was not available, the Michigan Extension Service determined to launch its own study of the matter.

Early in 1950, as a result of the active concern of the Michigan Extension Service over this need for improved selection techniques, the Extension Training Specialist, John T. Stone, was charged with the responsibility of initiating steps toward studying the problem. The Extension Service, felt that wide employment of the resources of Michigan State College should be made. Consequently Mr. Stone, after surveying the specific resources that could contribute to the study, organized a committee with representatives from the Department of sociology, the Institute of Counseling, Testing and Guidance, the Agricultural Extension Service and the Department of Written and Spoken English. The members of the committee were selected on the basis of (a) their familiarity with the problem, (b) their skill in research techniques, and (c) their willingness to serve. From time to time assistance was also contributed by representatives from the Department of Psychology and the Board of Examiners. The committee came to realize that an adequate solution to its problem would entail the cooperation of several other state Extension Services over a period of years for purposes of cross-validation of any significant results found in Michigan. However, it felt that a study of County Agricultural Agents and 4 H Club Agents in Michigan

would be a feasible point of departure and would provide satisfactory preliminary data upon which further research could be based. It therefore designed the project, as described previously, as the first stage of a long range study.

Since the plan of this first stage was to analyze the relationships between the various personal factors, previously discussed, and the work adjustment ratings of the Agents, certain members of the Planning Committee then undertook separate phases of the study. The writer, a Counselor at Michigan State College, was assigned the personality pattern aspect of the study as it was related to his training and experience as a counseling psychologist.

Limitations of the Study. Certain limitations are inherent in this study and the value of its findings are restricted accordingly. They are:

(a) It was necessary to assume honesty on the part of Agents in their response to MMPI items. Although the MMPI contains three validating scales and a correction factor it was felt by the committee that due to strong motivation of the Agents it was not necessary to include these items in the adapted form of the MMPI employed. (Description of the adaptation and some justification for the procedure is contained in Chapter II).

(b) It was necessary to assume objectivity on the part of the administrators in rating the work effectiveness of the Agents. As will be pointed out later in the study, several

steps were taken in the administration of these measuring devices to elicit honesty and objectivity, but it was not possible to ascertain the degree to which this was attained.

(c) Although a long range study is included in the plans of the General Research Project, this particular study is subject to the possible limitations of a cross-sectional study in contrast to a longitudinal study.

(d) The statistical techniques used herein do not adequately test variables suspected to lack normality of distribution. However some justification for their use is offered in Chapter III.

#### Definition of Terms

There are certain terms to which frequent reference will be made in the remainder of this study. These terms are common to all phases of the General Research Project and have been generally defined (90:32).

Extension Service Worker. The term "Extension Service Worker" will refer to the entire group of employees of the Michigan Extension Service. Extension Service workers in other states will be designated accordingly. Reference will be made to three groups of Extension Service workers, namely, "Extension Administrators", Extension Specialists", and County Extension Workers".

Extension Administrators. Extension administrators will include the Director of the Extension Service, the Assistant



Director of the Extension Service, the State Agricultural Extension Leader, the State 4 H Club Leader, the four District Supervisors, and the Specialist in Extension Training. The complete list of administrative personnel includes the State Home Demonstration Leader, the Assistant State Leaders of Home Economics and the Assistant State Leaders of 4 H Club work.

Specialists. The term "Specialists" will refer to the Extension Service Subject Matter Specialists. Each Specialist works in the interests of the total Extension Program by providing to rural people, through the County Extension workers, the most appropriate scientific information applicable to their problems. Each Specialist is responsible for a particular area of knowledge.

County Extension Workers. The term "County Extension workers" will refer to the County Agricultural Agents, the Associate County Agricultural Agents, the Assistant County Agricultural Agents, and the County 4 H Club Agents. Home Demonstration Agents and Assistant Home Demonstration Agents are also County Extension workers but are not included in the definition here since they were not studied in this research.

County Agent. The term "County Agent" will include the County Agricultural Agent, the Associate County Agricultural Agent, and the Assistant County Agricultural Agent. In Michigan the County Agent is usually the staff member to whom the

responsibility for the administration and coordination of the County Extension program is designated.

4 H Club Agent. The term "4 H Club Agent" will refer to the County 4 H Club Agent. The 4 H Club Agent is primarily responsible for the youth Extension programs in the counties. The duties of the 4 H Club Agent and the County Agent will be presented in more detail in Chapter II.

Work Effectiveness. Work effectiveness, which in this study was determined for the County Agents and the 4 H Club Agents through ratings by their superiors, is considered to be not only the over-all success with which they have performed the specific duties prescribed by the various agencies and organizations which have a part in directing their activities, but also their success as manifested by the type of initiative and discretion employed in coping with new problems, particularly where public relations are involved.

Job Satisfaction. Hoppock defines job satisfaction as "any combination of psychological, physiological, and environmental circumstances that causes a person truthfully to say, 'I am satisfied with my job.'" (53:47) This definition conveys the concept of job satisfaction implicit in this study, and is, of course, well suited to the appraisal of job satisfaction by means of the adaptation and extension of the Hoppock Job Satisfaction Blank used herein.

Personality Patterns. Since the Minnesota Multiphasic Personality Inventory was selected for appraising the person-

ality patterns of the population studied. The purpose of the MMPI as conceived by it's originators, Starke R. Hathaway and J. C. McKinley, is basic to this study. (48:14-15)

For several reasons it has seemed that a multiphasic personality schedule might be constructed which would be of greatest value in the medical and psychiatric clinic than is true of personality inventories already available. It is desirable that more varied subject matter be included to obtain a wider sampling of behavior of significance to the psychiatrists, rather than utilize independent sets of items for special purposes such as one might use in studying particular reaction types. It seemed desirable to create a rather large reservoir of items from which various scales might be constructed in the hope of evolving a greater variety of valid personality descriptions than are available at the present time.... The Minnesota Multiphasic Personality Inventory is a psychometric instrument designed ultimately to provide in a single test, scores on all the more important phases of personality.

Summary. In 1950, the Michigan Cooperative Extension Service initiated a research project for the purpose of obtaining information that would aid in the selection of County Agricultural Agents and 4 H Club Agents who would be more effective and more satisfied in their work. The initial phase of the project called for an analysis of the relationships of biographical data, vocational interests, personality traits, and academic backgrounds of the present Michigan Agents to their work effectiveness, as determined by ratings by their supervisors and to their job satisfactions, as determined by an adaptation and extension of the Hoppock Job Satisfaction Blank.

The problem of this particular study was to analyze the relationship of the personality patterns of the present Agents to these two criteria of work adjustment for the purpose of providing a description of the Agent's personality patterns and for determining MMPI scales that might be of value in the selection of more effective and more satisfied Agents. To accomplish this purpose the significance of difference between the MMPI mean scale scores of the various "high" and "low" work adjustment groups of Agents was tested. The intensity of these relationships was determined, and the accuracy with which predictions could be made from these scores was appraised.

Recognition of the need for more valid selection techniques was manifested by the Office of Naval Research of the United States Navy and the United States Department of Agriculture through financial assistance for this research. This recognition was prompted, in part, by the concern of Extension Administrators about the rate of turnover and indications of dissatisfaction among County Agents and 4 H Club Agents.

A Planning Committee was organized to direct the General Research Project. Individual members of the Committee conducted separate phases of the project.

Certain terms which are used frequently in this study were defined and limitations of the study were listed in

this chapter. The remainder of the study is organized as follows:

- Chapter II - Review of related research.
- Chapter III - Description of instruments used, sample, and procedures employed in collecting, organizing, and tabulating the data.
- Chapter IV - Description of the methods used in establishing the variable work adjustment groups.
- Chapter V - Description of the personality patterns of County Agricultural Agents and 4 H Club Agents.
- Chapter VI - Discussion of the relationship between personality patterns and work effectiveness.
- Chapter VII - Discussion of the relationship between personality patterns and job satisfaction.
- Chapter VIII - Summary of the study, presentation of the conclusions, and suggestions for further research.

## CHAPTER II

### RELATED RESEARCH

A review of professional literature that is pertinent to the relationships between the measured personality patterns and work adjustment of Michigan Extension Service workers will be presented in this chapter. Since no studies directed specifically at the prediction of rated job success and expressed job satisfaction of Extension workers as such were found by this writer, studies of the relations of personality factors to work adjustment in other occupations will serve to contribute background information and points of departure for this study. Much of the research related to this study has been summarized by others (90,91) and will not bear repetition here. Summaries which appear to supplement this particular study will be cited and reviews of specific researches concerning the relationship of personality factors to each of the work adjustment criterion utilized herein will follow.

#### Related Summaries of Research

General Research Relative to the Relationship of Personality to Work Adjustment. While research concerning work adjustment has been most prolific during the last decade, surprisingly little concern has been given to the relationship of personality factors and work adjustment. Prior to 1948 the

professional literature featured few investigations that could be so categorized. Hoppock (60) in one of his periodic reviews of Job Satisfaction research studies decried this failure thus:

Because we can readily measure and record educational experience, work experience, and performance on aptitude and interests tests, we drift too easily into the practice of appraising occupational fitness in these terms. We ignore what might be called emotional fitness for the job.

Perhaps we would do a better job of counseling and of hiring if we gave a little more attention to the personal needs which the workers feel and to the emotional satisfactions and frustrations that the job involves...

Perhaps this is why students choose occupations for which they are obviously "unsuited". Perhaps the student is unsuited for the job but the job is (or appears to be) perfectly suited to his emotional needs... Perhaps many emotional problems would be solved by better vocational guidance if we gave more attention to the emotional fitness of the man for the job and the job for the man.

A trend toward stepped-up research in the area of personality-work adjustment relationship was evident in the studies of 1948 (56). Hoppock and Robinson (58) in the review of Job Satisfaction Researches of 1950, noted that, "A number of the studies have made use of projective techniques, intensive interviewing, personality scales, interest blanks and less conventional techniques". Evidence that students of work adjustment were coming to accept the personality concept as a hypothesis demanding investigation was found by the same reviewers (59) who noted in 1951, that, "Many researchers in the area of job satisfaction do not accept the thesis that such factors as job security, wages, physical working conditions,

etc., are symptoms of job satisfaction or dissatisfaction but are not causes in themselves. The trend seems to be in the direction of a probing for individual-adjustment, and group-adjustment causes."

Investigators such as Bengtson and Copell (9), Brotemarkle (15), DiMichael and Dabelstein(25) and Woods (118), had unearthed evidence indicating the presence of personality factors in work adjustment. Roper (92) conducted a morale survey among a random sample of young workers and found that the percentage who took pride in their work "all of the time" ranged from 85 per cent of the professional, executive groups down to 41 per cent of the factory laborers.

The University of Michigan Survey Research Center interviewed clerical workers in the Prudential Insurance Company to study differences in productivity between employees performing similar tasks (104) and found that groups with higher production showed greater pride in their own work. The principal reason that the lower-production group gave for dissatisfaction with their jobs was that "insufficient authority was delegated to them."

Mace (75) suggested that there are motives other than the pay check which satisfy man and declared that "man finds satisfactions if his job contains a certain minimum of inherent interest, if it brings a reward accepted as fair and if the work contributes to his self-respect."



Added impetus was given to the investigation of personality and job adjustment by the monumental study of Friend and Haggard (30), who, with the help of social case workers and counselors, studied the 67 men and 13 women who came to the Vocational Counseling Service of the Family Society of Greater Boston between 1934 and 1943. All subjects were rated by two persons on 173 items, after an average contact of 130 hours per case. The following characteristics were typical of the subjects who were rated high in work adjustment: closely-knit families, less antagonism toward parents, they had experienced less sibling rivalry, greater independence in decision making, less ambivalent, more persistent, less liable to self-disparagement, more flexible, more competitive and showed generally better mental health. The major conclusion of the study appeared to be that "we take our pasts with us to our jobs and react accordingly."

Studies by Morrow (84), and Sutherland and Menzies (105), revealed the role of personalogical factors in industrial work adjustment while an investigation of home economics teachers (4) gave some insight into the role of personality in the make-up of job satisfaction attitudes in the teaching profession.

An attempt to study worker adjustment with projective techniques was made by Haire and Gottsdanker (46) in their analysis of retail grocery store clerks rated by management as high or low in productivity. While the techniques did not

yield the same results they were found to supplement each other in the "level" and specificity of attitudes expressed. Evans (28) also utilized projective techniques along with a questionnaire and free expression in his investigation of 5100 employees and determined psychologically meaningful differences between various groups of employees. Evans pointed out that "conventional survey techniques tend to obscure true employee attitudes by formal and rigid structuring." However, Crosby (23) used the Rohrschach Group Method, and the Minnesota Personality Scale on 230 young women and found no significant relationship between job satisfaction, personality adjustment and academic achievement.

Kates (66) contributing to the growing trend utilizing projective techniques with his investigation of 100 male clerical workers employed by the United States Government, found a correlation of plus .21 between clerical scores on the Strong Vocational Interest Blank and job satisfaction as measured by the Hoppock Job Satisfaction Blank. No relationship was found between job satisfaction and Rohrschach indicators of adjustment as evaluated by the Davidson List of Adjustment scale and the Monroe Inspection Technique. Kates obtained similar results in his study of 25 New York City patrolmen.

Significant relationships between employee's feelings of ego involvement in a telephone company's day-to-day operation

and job turnover were defined by Wickert (114) in his research utilizing a personality and attitude questionnaire, employment test scores and depth interviews. However, no significant relationship between productivity and general job satisfaction was apparent in a jointly conducted study of railroad workers (67).

Concern over the problem of teacher turn-over among secondary schools in central New York prompted Andrus (5) to investigate the opinions of both principals and teachers. Whereas principals indicated only 11 per cent of the turnovers were due to dissatisfaction, the teachers themselves stated dissatisfaction to be the principal cause of turnover. Unsatisfactory relations with principals were mentioned most often by the teacher group as the cause of their dissatisfaction. Andrus believes that better mutual understanding and communication between administration and staff members might reduce turnover. Also employing the questionnaire technique, Chase (20) surveyed 1784 teachers in over 200 systems in 43 states. On the basis of these returns he concluded that enthusiasm was an essential element in obtaining superior ratings from administrators. Of 11 specifics contributing to satisfaction in teaching, leadership and participation were the chief factors.

Research Relative to the Relationship of the Minnesota Multiphasic Personality Inventory Scores and Work Adjustment.

A review of the general research in the area of work adjustment has revealed that currently, investigators are emphasizing the

apparently causal factors of personality traits as opposed to the symptomatological factors of wages, hours, supervision, etc. While the total amount of research so focused is not great due to the relative recency of this concept, of all the paper-and-pencil personality instruments, the MMPI has seemingly best fulfilled the requirements of investigators and has been utilized accordingly.

Because the MMPI was first published in 1943, the larger share of developmental research concerning the reliability and validity of the test was accomplished in Service-connected installations of World War II. Thus oriented, many psychologists continued to employ the MMPI in veterans' facilities subsequent to the cessation of hostilities. Consequently, a number of studies dealing with the relationship of personality and occupational adjustment were produced by researchers in veterans' occupational advisement organizations.

Daniels and Hunter (24) studied 893 male veterans who underwent advisement at the Veterans' Administration Regional Office, Phoenix, Arizona. They found that the means on the MMPI scale for the various occupational groups tended to scatter rather widely about the T score of 50 whereas the mean of all occupational groups combined approached the T score of 50 for each scale rather closely. The means of personality scores for occupations taken from near the middle of the distribution were discovered to be significantly different from the means at either extreme.

Statistical evidence in this investigation seemed to indicate that professions of a so-called highly cultural nature require as a fundamental "work-need" a degree of Masculine-Feminine pattern approaching a T score of 70 on the MMPI. The "work-need" of the individual personality with a high degree of Psychopathic Deviate pattern was found best fulfilled in the occupations of author, editor, reporter or athletic coach. Occupations which do not require the individual to associate too closely with others best satisfied the "work-needs" of subjects showing a high Schizophrenia pattern. Highly significant statistical differences, for example, were found between subjects selecting 'draftsman' as compared to 'athletic coach' as occupations. An outlet for high-degree enthusiasm through overt activity constituted the "work-need" for subjects with Manic patterns on the test.

From their evidence Daniels and Hunter conclude (24:565) that "the data would appear to indicate significant differences between personality patterns as related to the various occupational objectives, when total personality is viewed in terms of psychogenetic origin and conditioned-response development." By utilizing this technique and viewpoint it seems to the authors that "the MMPI is a fairly sensitive instrument for measuring the total personality 'work-needs' in relation to the suitability of occupations having certain personality demands."

Because the MMPI "appeared well standardized in terms of various clinical categories that could be related to vocational fields" it was included in the test battery given veterans at the Minneapolis, Minnesota facility by Harmon and Weiner (47). Elevations on the scales of Hy, D and Hs were found to occur more frequently than on other scales and to often indicate severe limitations on the kinds of work a man is willing to undertake, most frequently eliminating dirty or heavy jobs. Also, it often indicated the desirability of a job where a minimum of stress would be encountered. Paranoia and Schizophrenia scale elevations correlated with preference for relatively routine, well-regulated jobs while elevations of the Psychopathic Deviate and Hypomanic scales indicated the type of personality, the authors felt, most likely to succeed in jobs where individual initiative and aggressiveness are at a premium. Considerably less favorable prognosis of vocational success was indicated by simultaneous scale elevation for Paranoia, Psychasthenia and Schizophrenia where adjustment patterns appeared to be obstacles to success in practically all occupations.

Two studies will serve to illustrate the utilization of the MMPI in the selection and placement of personnel within the Service. Cook and Wherry (21) obtained data on 111 Naval enlisted, submarine candidates with a test battery involving the MMPI, Two-Hand Coordination Test, Basic Battery of Written Tests (arithmetic reasoning, mechanical knowledge,

electrical knowledge, mechanical aptitude and the General Classification Test), the Navy Enlisted Personnel Inventory and Tank Performance (medical officers ratings on candidates' performances in escape tank training).

Factor analysis revealed a total of six factors inherent in this test battery. These factors were described by the authors as: Factor A, Tendency to Personality Maladjustment; Factor B, Numerical-Verbal Intelligence; Factor C, Tendency to Over-Activity; Factor D, Tendency to Paranoia; Factor E, Mechanical Coordination; and Factor F, Tendency to Feminine Interest Pattern. The multiple correlations of these factors with MMPI scales are presented in Table I.

Abramson (1) analyzed 28 Army officers' responses on the MMPI and found that lack of adaptation was correlated with high L, K, and Hypomania scale scores. After classifying the officers on the basis of military efficiency, Abramson concluded that "given a normal MMPI curve without undue elevations of scales L, F, and Ma the selection of officers charged with combined scientific and military duties rests essentially on placement." Jensen and Rotter (63) employed only the Psychasthenia scale of the MMPI in a battery of thirteen psychological tests administered to 1548 Army officers and officer candidates. Against a criterion of officer candidates versus officers rated as outstanding by their superiors, the Ps scale did not indicate significant differentiation.

TABLE 1  
FINAL FACTOR LOADINGS<sup>1</sup>

MMPI Scales	Factor A	Factor B	Factor C	Factor D	Factor E	Factor F
Lie Scale		-.26		.67		
Validity Scale	.64				.31	
Hypochondriasis	.79					
Depression	.28		.48			
Hysteria	.28		.43	.34		
Psychopathic Deviate	.33		-.38			
Masculinity- Femininity	.33			.38		.39
Paranoia	.25			.48		
Psychasthenia	.72					.47
Schizophrenia	.93					
Hypomania	.41		.56			

<sup>1</sup> Derived from E. B. Cook and R. J. Wherry, "A Factor Analysis of MMPI and Aptitude Test Data," Journal of Applied Psychology, 34: 255-260, 1950.



Verniaud (113) tested 40 clerical workers, 27 department store saleswomen and 30 optical workers with the MMPI and found marked occupational differences. All these workers were directly under a supervisor with professional-executive status and all had duties involving both paper work and personal contact. Similar profiles were recorded by all three groups for the "psychoneurotic triad": Hypochondriasis, Depression, and Hysteria. The clerical worker profile remained relatively flat throughout, rather approximating the norm mean whereas the saleswomen profile was sharply elevated on the Masculinity-Femininity scale. On all scales except the "psychoneurotic triad" the composite optical worker's profile mounted to a plateau relative to the mean of the norm group with Hypomania slightly elevated relative to this plateau. Verniaud emphasized that "one conclusion can be drawn from this investigation: there are group differences in the personality of successful workers corresponding to gross differences in job requirements and some of these differences may be identified by responses on the MMPI."

Several researchers have examined the relationship of personality to college academic achievement. Kahn and Singer (65) observed two groups of upperclass students in a school of commerce. Two classification groups; "successfuls," having excellent academic records and "unsuccessfuls", having frequent academic probation status, were established. The mean score in neither group reached the 70 T score level although

both groups exceed one standard deviation from the norm mean on the *Mf* scale. The "non-successful" group significantly exceeded the "successful" group on the *Sc* scale; leading the authors to conclude that "it is virtually impossible to infer the cause or sequential relationship; either schizophrenic-like tendencies contribute to academic failure or continued failure is a contributing factor in the development of schizophrenic-like tendencies."

Lough (74) compared MMPI profiles of 185 women students in a teachers college, of whom 94 were entered in the general curriculum, the remainder being music majors. She discovered that music majors scored highest on the *Ma* scale, lowest on the *Hs* scale and had a lower *Pt* score than the norm mean. Students in the general curriculum, meanwhile, peaked on *Ma*, were lowest on *Pt* and had lower *Hy* and *D* scores than the norm mean. No significant difference was found between the two groups, leading Lough to observe that "teaching may be a good vocation for those with hypomanic trends, as teachers using modern methods continuously vary work processes, need initiative and aggressiveness and the work is fairly unregimented."

Altus (2) applied the MMPI to an investigation of academic achievement of college students in an elementary class in psychology and found the trend on eight out of nine clinical scales was in the direction of slightly greater maladjustment on the part of non-achieving students. An item analysis of the 60 items which showed a difference of five or

more points between the two groups revealed the answers of achievers contained "introversive tendencies" while those of the non-achievers indicated "a love of and a dependence on people."

Berdie (11) carried out an inquiry into the relationship of high school seniors' interest and personality patterns. Relating scores achieved on the Strong Vocational Interest Blank with those on the MMPI, he determined that high school seniors with interests like those of engineers had inferior social adjustment scores whereas those with social welfare interests had better social and emotional adjustment patterns.

A comparison of 50 Life Insurance salesmen and 50 social workers as to MMPI and Kuder Preference Record scores was executed by Lewis (72) who discovered significant relationships were involved. Means of the Life Insurance salesmen were determined to be significantly different from the MMPI norm group at the .02 level of significance on D, Hy, Pd, Mf, Pa, and Ma scales with all mean scores elevated. Significantly, different scores from the norm group were obtained by social workers on D, Hy, Mf, Hs, Pt, and Sc with mean scores on the first two scales elevated while those on the last four were depressed. Internal group differences between the eleven salesmen scoring highest on the Kuder Persuasive scale and the eleven scoring lowest on this scale were small but all differences were in the same direction, i.e., the low Persuasive group had higher means on all MMPI scales than did the

high Persuasive group. The same relationship held true when the Social Worker group scoring high on the Kuder Social Service scale was compared to the group scoring low on the same scale. These results led Lewis to feel that "there is a relationship between occupational interests and personality tendencies as these are measured by the Kuder Preference Record and the MMPI. The relationship appears to be inversely proportional when the occupation the person is engaged in is considered."

Wiener (115) developed subtle and obvious keys for use with the MMPI and evolved a point formula based on differences between these keys for five scales. Comparing "successful" with "unsuccessful" groups of college students, clerical and trade trainees, and salesmen, he discovered that the trend of differences was the same for all three groups with the "successful" groups obtaining Subtle scores higher than Obvious scores in a ratio corresponding to their degree of "success." Weiner (116) continued his study with the salesmen group and found he could employ this formula to eliminate from 36 to 88 per cent of the "unsuccessful" salesmen depending on the cut-off point used.

Students in five selected professions at the University of Wisconsin were studied by Blum (12) who utilized the Strong Vocational Interest Blank and the MMPI. Significant correlations were determined between the following MMPI scales and

Strong Occupational Interest groups:

Psychasthenia.....Group VI, XI

Masculinity-

Femininity .....Groups I, II, III, IV  
VI, VII, X, XI

Depression .....Groups II, IV, IX

Schizophrenia.....Groups I, III, VIII

The correlation between Depression and Groups II, IV, and IX, and between Schizophrenia and Group VIII were negative. Negatively significant correlations were also determined for the MMPI Masculinity-Femininity and the Non-Occupational Strong Masculinity-Femininity scale and for the MMPI Paranoia scale and the Strong Level of Interest scale. Mean T scores for the selected groups are presented in Table II.

However, Blum was of the opinion that the correlations which were significant were so in a statistical sense only and felt that "there is little in common between scores on interest inventories and those on personality inventories."

Complaints of vocational agriculture teachers as indicators of job dissatisfaction were compared with MMPI scores and Kuder preference Record scores by Bursch (18) who reported that complaints of workers are not "the offspring of emotionally or vocationally maladjusted individuals only."

Summary of Research of Personality and Work Adjustment Relationships. Investigation of the relationship of personality factors to work adjustment has gained momentum since the close of World War II. The positive findings of Friend

TABLE 2

MEAN T SCORES ON DIAGNOSTIC SCALES  
OF MMPI TABULATED BY SCHOOLS<sup>1</sup>

MMPI Scale	Education	Mech. Eng.	Journalism	Medical	Law
Hypochondriasis	45.9	46.4	49.2	50.0	49.0
Hypomania	55.1	54.0	49.2	49.5	52.1
Hysteria	51.5	56.8	54.0	54.9	55.4
Psychasthenia	48.9	47.2	48.4	50.3	47.3
Masculinity- Femininity	57.7	61.6	59.6	58.7	55.2
Paranoia	51.1	54.9	51.4	49.9	51.2
Depression	51.5	43.2	51.2	50.8	47.8
Psychopathic Deviate	48.7	51.0	50.0	51.4	49.5
Schizophrenia	49.7	49.5	49.5	52.8	46.8

<sup>1</sup> Adapted from Lawrence P. Blum, "A Study of Five Selected Professions," Journal of Experimental Education, 16;31-65, 1947.

and Haggard described the role of child-parent adjustment in late adult worker adjustment and gave impetus to future investigations. Due to its apparent effectiveness in the Military situation (21,27) the MMPI was employed with significant results more extensively than any other paper-and pencil personality test in the occupational advisement of veterans (47,115). Research findings also indicated that the instrument differentiated civilian workers as to occupational groups (72,113) while studies of college-students (62,74,2) tended to confirm personality differences in choice of major and academic achievement.

Projective techniques have been employed to analyze the role of personality and work adjustment in a number of studies (23,28,46,62) with Crosby and Kates reporting negative findings. Two studies utilizing the MMPI (12,18) also reported negative findings although statistically significant relationships were determined in Blum's work.

Significance of Research Findings. The significance of the results of this review of research, in terms of background data and points of departure for this study, may be stated as follows: The problem facing the Michigan Extension Service is to discover or develop techniques for selecting County Extension workers who will be more successful and satisfied in their work. The results of most of these studies reviewed indicate that in a number of occupations it has been possible to differentiate "more successful" from "less successful" and

"more satisfied" from "less satisfied" workers on the basis of personality factors. Since these results were found for other occupations, it becomes possible that the County Agricultural Agents and 4 H Club Agents could be so differentiated and that these studies provide suggestions as to instruments and techniques that might be used.



## CHAPTER III

### SAMPLE, PROCEDURES, AND TECHNIQUES

The purpose of this chapter is to describe the instruments used in appraising job satisfaction and Personality patterns of the subjects studied, to define the population sample from which the data used in this study were obtained, to discuss the procedures followed in collecting and preparing the data for analysis and the techniques employed in analysis.

#### Description of Instruments Used

Procedures by which ratings of work effectiveness were obtained for the County Agents and 4 H Club Agents and the means by which their job satisfaction ratings were determined by their responses to the Job Satisfaction Questionnaire are presented in Chapter IV. A description of the Job Satisfaction Questionnaire<sup>1</sup> and of the Minnesota Multiphasic Personality Inventory is included at this point since numerous references are made to these instruments in the remainder of the study.

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<sup>1</sup>"Job Satisfaction Questionnaire" is the name assigned to the adaptation and extension of the Hoppock Satisfaction Blank used in this study.

The Job Satisfaction Questionnaire. The Job Satisfaction Questionnaire<sup>2</sup> used in this study is derived from the Hoppock Job Satisfaction Blank (53). The Hoppock Blank consists of four questions, each having seven alternative answers. The questions require that the subject evaluate himself in connection with how well he likes the job, how he compares with other people in his liking for his job, how he feels about changing his job, and how much of the time he feels satisfied with his job.

The score for the Blank is the sum of the separate weights for each of the four questions. Each question is given a weight equal to the number (one to seven) of the alternative that is marked by the subject. This method of scoring was arrived at after it was discovered that a more complicated and ostensibly more accurate method of assigning weights gave almost identical results, the correlation between the two methods equalling plus .98. The split-half reliability of the four item Blank is reported by Hoppock to be plus .93.

The questionnaire<sup>3</sup> devised for the General Research Project consisted of seven questions regarding job satisfaction,

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<sup>2</sup>This questionnaire is described in detail in Rowland R. Pierson, "Vocational Interests of Agricultural Extension Workers as Related to Selected Aspects of Work Adjustment," (Unpublished Ph.D. Thesis, Michigan State College, East Lansing, 1951, 342 pp.)

<sup>3</sup>See Appendix A for a copy of the Satisfaction Questionnaire.

each of which was followed by a question regarding the intensity of feeling accompanying the response to the job satisfaction question. Four of the seven job satisfaction questions were adapted directly from the Hoppock Blank. The three additional questions ask for self-evaluations in terms of, "How well satisfied are you with your occupation?", "How enthusiastic are you about your occupation?", and "How interested are you in your work?".

The selection of the job satisfaction questions and the accompanying intensity questions was based upon the results of a pilot study with a group of 100 teachers of vocational agriculture who were attending a conference at Michigan State College in 1950.<sup>4</sup> By submitting their responses to these questions to scale analysis<sup>5</sup> it was found that seven of the seventeen questions were scalable and therefore were considered suitable for this study. The total job satisfaction score for an individual could range, theoretically, from zero to 29. The intensity questions are assigned weights ranging from zero, indicating the least intensity, and two the greatest intensity.

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<sup>4</sup>This pilot study was conducted by Dr. Kenneth G. Nelson, Assistant Professor, Dept. of Guidance and Counselor Training, Michigan State College.

<sup>5</sup>Scale analysis is discussed in Chapter IV.

Since reliability was determined by consideration of scaled scores found in this analysis, data concerning the reliability and validity of this questionnaire are presented in Chapter IV following the discussion of scale analysis.

The Minnesota Multiphasic Personality Inventory. The MMPI is a personality measurement technique developed at the University of Minnesota by Starke R. Hathaway and J. C. McKinley (manual) and first published in 1943<sup>6</sup>. It is copyrighted in both an individual card form and in a paper and pencil group form.

The group form consists of 566 items, to each of which the subject is asked to react as, (1) being true or mostly true concerning himself, (2) being false or not usually true concerning himself, or (3) to omit answering the item if it does not apply to him or is something about which he does not know.

At present the MMPI yields scores on four validating scales, nine clinical scales and a number of "social" scales. The four validating scales are a question (?) scale, lie (L) scale, validity (F) scale and a test attitude (K) scale or correction factor. The clinical or diagnostic scales on which scores can be produced are those for Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Masculinity-Femin-

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<sup>6</sup>See Appendix B for a copy of the adapted form of the Minnesota Multiphasic Personality Inventory used in this study.

inity of interests, Paranoia, Psychasthenia, Hypomania and Schizophrenia. These scales are based upon clinical cases classified according to conventional psychiatric nomenclature.

Each of the Diagnostic scales was constructed in approximately the same manner. The development of the Hypochondriasis (Hs) scale will serve as an illustration of the method employed.

To develop the Hs scale, pathological cases were meticulously selected to include only those patients manifesting pure, uncomplicated symptoms of hypochondriasis. Fifty cases of this type were available. A normal group consisting of 162 young adults ranging from twenty-six to forty-three years of age and 265 University of Minnesota freshmen were used as control. The percentage frequency of response on each item was tabulated for the normal and the pathological groups. An item was tentatively selected for scale construction only if it showed a percentage frequency difference between the criterion group and the normal group which was at least twice its standard error (49).

The same general procedure is described by the authors for the construction of scales for Hysteria, Hypomania, Psychopathic Deviate, Psychasthenia and Depression.

Description of the MMPI Clinical Scales. A description of the basic clinical and validating scales of the MMPI follows.<sup>7</sup>

The Hypochondriasis scale (Hs) is a measure of the amount of abnormal concern over bodily functions, health and tendencies toward physical complaint.

The Depression scale (D) measures the extent of the clinically recognized symptom involving dejection, discouragement and despondent feelings.

The Hysteria (Hy) scale indicates the degree to which the subject is like patients who have developed symptoms involving excess immaturity, unrealism, amenability, naivety and social strivings.

The Psychopathic Deviate scale (Pd) determines the similarity of the subject's responses to those of individuals who are abnormally irresponsible, undependable, impulsive, ego-centric, defiant, asocial and individualistic.

The Masculinity-Femininity (Mf) scale is a measure of the tendency toward an interest pattern corresponding to that of the opposite sex of the subject.

The Paranoia (Pa) scale measures similarity to the responses of clinic patients who are excessively aggressive, critical, irritable, over-sensitive and suspicious.

The Psychasthenia scale (Pt) determines the subject's similarity to patients exhibiting extreme apprehensiveness, tension, hesitancy, insecurity and feelings of inadequacy.

The Schizophrenia (Sc) scale indicates the likeness of responses to patients who are withdrawn, over-sensitive, secretive and cautious.

The Hypomania (Ma) scale measures the personality factors characteristic of persons with marked

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<sup>7</sup>These scales are described in detail in Starke R. Hathaway and J. C. McKinley, "Manual for the Minnesota Multiphasic Personality Inventory," New York: The Psychological Corporation, 1943, 16pp.

confidence, hypersensitivity, aggressiveness, expansiveness and non-persistence.

The Question (?) scale is a validating score consisting of the total number of items put in the "cannot say" category by the subject. The size of this score affects the significance of other scale scores.

The Lie (L) scale is also a validating score that affords a measure of the degree to which the subject may be attempting to falsify his scores by always selecting responses which would appear to place him in the most favorable light.

The Validity (F) score serves as a check on the validity of the entire record. If the F score is high the other scales are likely to be invalid either because the subject was careless in answering the items or was unable to comprehend them, or because errors occurred in entering the responses on the record sheet.

The K scale has been incorporated in the MMPI since it's first publication. Through the research of Meehl and Hathaway (79) this scale was developed as a correction factor for certain test taking attitudes which tend to invalidate a MMPI record. One of the most important failures of almost all structured personality tests is their susceptibility to "faking". This deception may be conscious or unconscious and may amount to mere role-playing on the part of the individual who may be consciously honest and sincere in his responses. The K factor serves to detect these deviations.

Scoring and Interpretation of the Clinical Scales. The scores on the MMPI are reported in the form of a profile.<sup>8</sup>

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<sup>8</sup>See Appendix C for a copy of the MMPI profile sheet.

A raw score is secured by totaling responses for each scale. (48) The K factor is then applied to the Hs, Pd, Pt, Sc and Ma scales. (78) Each scale score is then converted into standard score equivalents by use of tables which are found in the MMPI Manual. (48) This standard score is known as a T score, and is based on the formula:

$$T = 50 + 10 \frac{(X - M)}{\sigma}$$

where the mean of the normative group is assigned a value of fifty and the standard deviation is adjusted to ten. X is the raw score and M is the mean of the raw scores of the normative group.  $\sigma$  is the standard deviation of that group.

Reliability and Validity of the MMPI. There is considerable controversial opinion as to the reliability and validity of subjective, structured, paper and pencil personality inventories. However, the MMPI appears to be generally recognized as being among the better available tests of this type. Ellis (27) in one of the recent reviews of the validation of personality inventories stated this attitude:

"The older, more conventional, and more widely used forms of these tests (personality questionnaires) seem to be for practical purposes, hardly worth the paper on which they are printed ... Among the new questionnaires the MMPI appears to be the most promising."

In commenting on the apparent superiority of the MMPI,

Ellis points out these factors: (27:307)

1. It is standardized on a clinical and objective rather than on the usual subjective basis.



2. Most of the validity studies have been done on groups similar to those on which the test was standardized, which was an honest sophisticated, institutionalized, abnormal, or else a military population with every incentive for honesty.

The usefulness of the MMPI is accentuated by a review of the research studies of validity and reliability. Altus and Bell (3) in their work with illiterates in an Army Special Training center found a Critical Ratio of 4.94 for the mean score differences of graduates versus discharges on the Pa scale and a CR of 4.14 on the Hy scale, when "riding the sick book" was used as a criterion. Both Critical Ratios are statistically significant. Benton and Probst (10) from their study of neuropsychiatric patients in a Naval hospital when ratings by psychiatrists were employed as a criterion affirmed that, "In the case of the Pd, Pa and Sc trends the differences with respect to mean test score between the normal and abnormal groups can be considered to be significant." When delinquency in adolescent girls was investigated upon the basis of MMPI patterns, Capwell (19) determined that "each scale except Hy, showed a clear differentiation between delinquents and non-delinquents."

Levenenz (71), Modlin (82), Morriss (83), and Schmidt (94), have similarly found the MMPI to verify clinical impressions of psychiatrists concerning neuro-psychiatric patients.

The usefulness of the MMPI is further described by Baker and Peatman (7) who, as a result of their questionnaire survey

of tests used in Veterans' advisement units, found the MMPI was employed more often than any other personality inventory.

Finally, the following comparisons of the validity of various commonly used personality questionnaires has been reported: (27)

<u>Name of Test</u>	<u>Times Validated</u>	<u>Positive Validations</u>
Bell adjustment Inventory	12	1
Bernreuter Personality Inventory	29	9
Thurstone Personality Schedule	10	4
Woodworth Personal Data Sheet	29	11
MMPI	15	10

The Social Scales. One of the primary reasons for the decision of the General Research Project committee to employ the MMPI as the personality instrument was for the purpose of investigating the utility of a number of recently developed, experimental social scales of that device in the matters of predicting work effectiveness and job satisfaction. Through the cooperation of Dr. Harrison B. Gough, who pioneered in the development of many of these social scales it was possible to obtain certain measures of the social adequacy of the population involved without the inclusion of additional instruments in the total project battery. In addition, it was felt that the opportunity to determine the applicability of these scales in the matter of "work adjustment" of Michigan Extension Workers would be a major contribution both to the current study and to the general area of personality measurement.

An examination of the development of the Academic Achievement scale (Ac) will serve not only to indicate the methodology employed in the construction of the social scales but also to emphasize the philosophical and psychological rationale upon which the work is based.

In the academic domain the attempt to consider non-intellectual factors in predicting scholastic achievement has been relatively unsuccessful. In one of the early reviews of the literature Stagner(97) found only negligible relationships between personality tests and grade averages, yet educators, psychologists, and others had long been aware that underlying motivational and personalogical factors were involved. Characteristic of the studies reviewed by Stagner was an empirical approach of correlating a series of test scores with grade averages to see what might be discovered. Borow (13) attempted to circumvent this problem by devising a series of 399 items, all relating to academic performance, insofar as intuition could determine. These items were then analyzed individually to discover which ones would, in fact, reliably differentiate under and over-achievers. The resulting scale correlated .30 with college grades and combined with capacity tests to give multiple correlations of .50.

Similar methods were used by Altus (2) in an item analysis of the MMPI, Owens and Johnson (88), and Gough (32).

Gough's Academic Achievement scale was the outcome of an attempt to incorporate and apply the discoveries of these previous studies to the problem of forecasting scholastic achievement. An item pool was created, consisting of the best items from the previous studies plus over one hundred newly written items. This item pool of some 200 items was then administered to the senior classes of four Minnesota High schools, a study population of 541 students. Criterion subsamples for the item analyses were formed for each school by selecting pairs of subjects matched for sex and intellect but widely separated by over-all high school grade average. Each item was then analyzed and all those which differentiated in all three comparisons were retained, sixty-four items in all.

An uncorrected split-half reliability of .72,  $S_e$  .07, was determined for the school having the largest number of cases (N 205). The validity of the scale for predicting honor point average was above .50 in each school while the correlation with intelligence test scores was low enough to permit an appreciable increase in the total predictive index when Ac and IQ are Combined in multiple correlation.

Higher scores on the Ac scale, Gough declares (32), are suggestive of greater seriousness of purpose, more persistence in academic and scholastic pursuits and more diligent and systematic work habits.

Descriptions of the development of the remaining social scales (33,34,37,39,42,43,44) indicate similar employment of empirical techniques.

A description of the eight social scales employed in this study follows:

Prejudice (Pr) indicates the degree of cynicism, suspiciousness, poor morale and feelings of ill will toward others.

Achievement (Ac) reveals trends toward tenseness, docility and insecurity resulting in greater academic output.

Social Status (St) measures the degree of self-confidence, poise and resourcefulness of personal endeavor.

Responsibility (Re) ascertains the subject's tendencies toward dependability, integrity, seriousness, steadiness and tenacity.

Dominance (Do) measures the degree of optimism, persuasiveness, self-discipline, and resoluteness with which the individual faces daily situations.

Social Participation (Sp) indicates the degree of social participation which the subject manifests and the ease with which he interacts and adapts to others.

Intellectual Efficiency (Iq) consists of items which have been determined to be positively related to measured intelligence.

Success (Su) indicates the subjects aptitude for tasks involving personal interaction, leadership and social understanding.

The adapted form of the MMPI used in this study. As the committee felt that the impact of the total study upon the Extension Service Workers was considerable, a decision was made to adapt the MMPI for the purpose of the study by reduction of the total number of items. Permission to make this revision for experimental purposes was granted by the Psychological Corporation, publishers of the MMPI. The adaptation was undertaken by the writer based upon research indicating greater

predictive value for certain of the clinical scales in terms of various occupations (1,24,72) and of the opinions of the committee members as to the function of each scale in the total project. As a result of this revision the total number of items in the adapted form was reduced from the original 566 to 341. Six of the original clinical scales were retained in the adapted form. They were: Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Psychasthenia and Hypomania. In addition to keeping these scales intact, necessary items for the eight social scales were included in the adaptation.

For ease of administration, the adapted MMPI was printed in booklet form and new scoring keys were devised.

### The Sample

The reason for the existence of the General Research Project lies primarily in problems concerned with the selection of County Agents and 4 H Club Agents in Michigan. Consequently, the study population was determined by definition of this problem, with their chief remaining consideration being the size of the sample to be studied.

### The Sample in Relation to the General Research Project.

That an adequate solution to the problem of the General Research project would entail the study of a greater Agent population than was available in Michigan, has been indicated. Plans have been made to enlist the cooperation of Extension Services in other states in such a long-range study. However, due to the lack of financial resources, establishment of a

coordinated interstate project, is at present, impractical; thus compelling each participating state to proceed independently in the initial phase of data collection. Cross-validation of findings remain a part of the long-range project and will be examined at some future date. In view of these considerations, the size of the sample studied herein is limited to that of the present group of County Agents and 4 H Club Agents in Michigan.

Number included in the sample. It was the intention of the Planning Committee to study the total group of County Agents and 4 H Club Agents who were employed in the Michigan Extension Service in September 1950. At that time the number included 89 County Agents (including Associate and Assistant Agents) and 53 4 H Club Agents. However, between that date and September 1, 1951 when the last of the data necessary for this particular study were received, eight County Agents and seven 4 H Club Agents had to be eliminated from further consideration because of retirements, resignations, transfers to other positions within the Service and death. Therefore, the sample upon which this study is based consists of 81 County Agents and 46 4 H Club Agents who were employed in the organization in September 1950 and who were still employed in a similar capacity in September, 1951.

Limitations and advantages of the sample. It should be recognized that although the Agents studied herein represent approximately 89.4 per cent of the Agents who were employed in

September, 1950 the sample does not include Agents who left the Service at any time prior to September 1, 1951, or individuals who desired to become County Agents or 4 H Club Agents but were not accepted into the organization. If such data as is used in this study had been available for this group over a period of years and if it could be assumed that such groups would include many individuals who might not have been well qualified for Extension work, it is possible that their inclusion in this study would have provided greater contrasts in the MMPI scale scores between variable work-adjustment groups of Agents. The sample, then, represents a group which is already rather highly selective, and consequently the range in terms of work-adjustment is proportionately restricted.

Conversely, there are various reasons why these two groups of Agents were considered well adapted for purposes of this research. (a) Since a member of the Planning Committee (the Extension Training Specialist) was on the administrative staff of the Extension Service, research data could be obtained from these Agents through their regular organizational meetings and other established channels of communication, thereby avoiding resistance that might have arisen if it were necessary to approach them "externally". (b) Extension Administrators believed that these Agents would be reasonably willing to cooperate in this research project. (c) By studying the total group and interpreting the results in terms of Michigan Agents alone, there would be no problem as to the appropriateness



of the sample. (d) Although the number of cases would not be large enough for certain desirable statistical techniques, for example item analysis of the MMPI, the numbers were considered adequate for the preliminary phases of the General Research Project. (e) It was possible to secure a rating of work effectiveness for each of these Agents.

The Agents' job situations. All County Agents and 4 H Club Agents in Michigan are employed by Michigan State College and hold faculty rank in the Agricultural Extension Department of the School of Agriculture. Their salaries are paid jointly by Michigan State College and the United States Department of Agriculture. Funds for operating county programs are furnished jointly by Michigan State College and the counties in which they work. Consequently external direction is given to their work by federal, state and county agencies. In this situation it is apparent that one of the criteria of work-adjustment is the degree to which an Agent harmonizes these forces in the performance of his work.

Duties of the Agents. Although the Cooperative Extension Service is essentially an educational organization, the work situation of the County Agents and 4 H Club Agents is considerably different from that of a classroom teacher. Stone (98) has described the duties of a County Agent in a statement prepared by the Michigan Extension Service. The

statement indicates that the following duties are expected of all County Extension workers:

1. The Agent represents Michigan State College and the United States Department of Agriculture in the county to which he is assigned.
2. He studies the resources, people and agriculture of the county to determine its problems that can be solved through education and cooperative effort.
3. He plans and works with local people on their problems, bringing science and knowledge to bear on a solution.
4. He develops an effective supporting organization of local voluntary leaders to help carry out the Extension program with the people of the county.
5. He develops rural leadership by providing opportunities for others to lead and by giving them training as leaders.
6. He maintains a public office where people can get information and advice concerning appropriate problems, disseminates a constant flow of information to all the people of the county through newspaper articles, radio broadcasts, circular letters, personal contacts, etc.
7. He arranges for meetings, demonstrations, exhibits, tours, etc., with the help of college specialists.
8. He plans and conducts leader training meetings for the main local volunteer leaders.
9. He must constantly evaluate his work, prepare monthly and annual reports of his activities.
10. His job is that of a teacher above all else, utilizing other workers in the Service to help carry out an effective Extension program with local people.

The Agents' Worker Roles. Further clarification of the description of the sample is possible through reference to the worker roles which these varied duties place on the Agents.

Various monthly and annual reports of Agents' activities have been analyzed to determine the most common of these roles other than the general role of teacher. This analysis has resulted in the following tentative list:<sup>9</sup>

1. Acting as a consultant, giving information and advice as requested.
2. Acting as a promoter, stimulating people to action in face to face contact.
3. Acting as a demonstrator or public speaker, giving information, talks, lessons, etc., before groups.
4. Acting as a newspaper reporter or columnist.
5. Acting as a radio broadcaster.
6. Acting as an organizer or arranger of activities or events.
7. Acting as a facilitator, or expeditor, making it easier for people to follow extension recommendations.
8. Acting as an administrator, organizing, supervising, writing reports, etc.
9. Performing office details, keeping records, etc.
10. Acting as a student, keeping up to date on new developments.
11. Acting as a public relations man, maintaining good public relations, building good will, etc.

Theoretically, all Agents perform all of the activities and play all of these roles, but probably in varying degrees

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<sup>9</sup>From unpublished preliminary data collected for a job analysis study, on file in the office of the Michigan Extension Service.

depending upon differences in local job demands and differences in personal characteristics. To the extent that a man's work describes the man, the heterogeneous nature of this job offers some basis for suspecting that the Agents are a rather heterogeneous group in so far as various personal factors are concerned. This consideration entered into the selection of the statistical techniques for the analysis of their personality patterns as will be discussed later in this chapter.

Ages and years of experience. Ages of the Agents and length of their experience in the Michigan Extension Service are given in Table 3. Data regarding number of years of experience in the Michigan Extension Service represent the length of time between the individual's first appointment to the Agricultural Extension Department of Michigan State College and May 1, 1951. As some Agents have been transferred from one position to another these figures do not necessarily reflect the number of years that an Agent has been in his present situation. Perhaps the most obvious item in Table 3 is the difference in the mean age and mean number of years' experience between the County Agents and the 4 H Club Agents. This difference of 9.56 years of age and 8.71 years of experience reflects the fact that in Michigan, County Agents are usually selected from among 4 H Club Agents. It is also possible that many 4 H Club Agents are attracted by the higher base salary of County Agents, the increased authority of that position and the opportunity of working primarily with adults. That some

TABLE 3

MEAN AGES AND NUMBER OF YEARS OF EXPERIENCE IN THE MICHIGAN  
EXTENSION SERVICE FOR COUNTY AGENTS AND 4 H CLUB  
AGENTS AS OF MAY 1, 1951

County Agents (N 81)				4 H Club Agents (N 46)			
	Range	Mean	S. D.		Range	Mean	S. D.
Age	24-63	42.73	9.35		23-60	33.17	7.87
Years in Service	1-35	12.90	8.26		.75-21	4.19	4.01

4 H Club Agents prefer to remain in that type of work is borne out by the age range and service range for that group although the standard deviations for these two distributions reveal that not a great number of them remain in 4 H Club work for an extensive period of time.

These differences in age and experience were considered as evidence that the personality patterns of the two groups should be analyzed separately although the job roles of each group have much in common.

Academic backgrounds of these Agents have been analyzed in another phase of the General Research Project. (91) Ninety-four per cent of each group were found to hold a B.A. degree or B.S. degree. Six per cent of the 4 H Club group and one per cent of the County Agent group have had some college training while five per cent of the latter group are

high school graduates but have not attended college. In addition twenty-six per cent of the County Agents and nineteen per cent of the 4 H Club Agents have completed some graduate work.

### Collection of Data and Their Preparation for Analysis

Administration of the Minnesota Multiphasic Personality Inventory: Since accomplishment of the General Research Project involved the use of a number of research instruments with the same population, it was mandatory that each phase be conducted in such a manner that the cooperation of the Agents in each succeeding step would not be jeopardized. Members of the Planning Committee, some of whom were former County Agents in Michigan, felt that persons within the Extension Service would be most likely to achieve the maximum cooperation in these endeavors and Dr. John T. Stone, Extension Training Specialist, and a member of the Committee, agreed to administer the research instruments.

After briefing on proper techniques, Dr. Stone administered the especially adapted MMPI test booklet to the County Agents and 4 H Club Agents in their regular district meetings during 1951. The usual instructions for administering the test (48) were followed with the Agents recording their answers on standard, three-place, IBM answer sheets.

Certain other steps were also taken to attempt to develop a receptive attitude on the part of the Agents toward

taking the MMPI: (a) The request to take the test was stated in terms of needing their assistance in the accomplishment of a research project that was designed to improve the Michigan Extension Service; (b) The general Research Project and the place of the personality study within it was explained to them; (c) They were promised that each Agent could, if he so desired, arrange with the author of this study for an interpretation of his test; (d) They were assured that anonymity would be preserved in the analysis of their responses by use of code numbers; (e) They were assured that their responses would have no bearing upon their status within the organization; (f) A number of Specialists and administrative officers were present at the meetings and took the test along with the County workers, thereby possibly enhancing the importance of cooperation of all members of the Extension Service in the study.

Since, in addition to the precautionary steps outlined above, Dr. Stone reported he could detect no lack of cooperation, since several Agents have requested interpretations of their profiles and since no test forms were invalidated by errors or omissions, it is concluded that the Agents' test-taking attitude was satisfactory and that their responses to the test items were reasonably sincere.

Scoring of the MMPI. Scoring of the MMPI (revised) form utilized in this study was carried out by the Board of Examiners, Michigan State College, scoring was done by IBM tabulating machines on six clinical scales and nine social

scales. The K scale (correction factor) was computed by hand. Appropriate techniques for checking accuracy of the machine scoring were employed by the trained personnel of the Board.

Administration of the Job Satisfaction Questionnaire.

As was agreed by the Planning Committee, Dr. Stone administered the Job Satisfaction Questionnaire by mail. A cover letter was prepared by Dr. Stone with the aid of the Planning Committee pointing out that the Questionnaire was another step in the General Research Project which had been discussed with them at their district meetings. The letter included instructions and assurances of anonymity.<sup>10</sup> By use of follow-up letters, completed Questionnaires were received from the total Agent population used in this study.

Scoring of the Job Satisfaction Questionnaire. The Job Satisfaction Questionnaires were scored manually by totalling the weights assigned to the responses for each category of the seven job satisfaction questions and the accompanying intensity questions. In addition to the raw scores derived in this manner, it was considered desirable to determine whether or not the qualitative items represented in these scores were undimensional, or could be expressed in a continuum, and whether or not a point could be fixed on the continuum which would

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<sup>10</sup> A copy of this letter is included in Appendix D.



separate those with positive attitudes toward their work from those with negative attitudes. This phase of scoring of this instrument is described in detail in Chapter IV.

Recording of Data: A personal data card was devised on which the raw data for each Agent was recorded. These data included the Agent's identification number, age, number of years experience, work effectiveness rating, county classification rating and job satisfaction scores. Data pertaining to each of the particular studies involved is to be added as it becomes available.

The data from the personal data cards were punched into International Business Machine Cards. The number representing each item punched was printed in the top of the cards by an electrically operated tabulating machine and each of these numbers was checked for accuracy against the entries on the personal data cards.

Tabulation of the data: The IBM cards were processed by electrical sorting and tabulating machines. The cards of the County Agents and 4 H Club Agents were first sorted separately according to four work effectiveness groups. The scores for all MMPI scales, the date of birth and the date of appointment were tabulated for these eight subgroups. The two groups of Agents were then sorted according to two job satisfaction groups, and the scores for the same variables were tabulated for these four subgroups. This tabulation provided the subgroup frequencies and total scores (sums of

scores times frequencies) for each variable. All results were checked for accuracy.

### Techniques of Analysis

Significance of the difference between means: In attempting to determine MMPI scales that would differentiate "high" and "low" work adjustment groups of Agents, the implicit problem was to determine the scales on which the variable work adjustment groups would differ significantly. The first step in this direction was to discover the MMPI scales on which the differences in the mean scores among a number of differential work adjustment groups of Agents were great enough that they could not be attributed to the "chance" errors that normally occur in the process of selecting any sample groups from a total group, but that they could be considered "real" and that the results of the comparisons could therefore be declared significant. The customary basis for determining whether the results were significant or insignificant has been defined by Johnson (64:32) and was employed in this study. It is:

- (1) The results are said to be significant if the conclusion that they are wrong would be erroneous in 1 per cent or less of the cases.
- (2) The results may be significant but further observations are necessary if the conclusions that the results are significant would be wrong in 5 per cent or less but more than 1 per cent of the cases.

- (3) The results are not significant if our conclusion that they are significant would be in error more than 5 per cent of the cases.

Assumption of normal distribution. The assumption of normality is implicit in the application of the statistical techniques used in this study. No effort was made to test this assumption for the many variables studied. McNemar (77:215) and Snedecor (96:221) have observed that evidence is available to support the contention that a moderate skewness, piling up (leptokurtic), or flattening out (platykurtic) is permissible in the use of various techniques, particularly the "t" test and analysis of variance. In the case of certain variables, such as MMPI scales which are not related to Agents studied herein, it is natural that the distribution of these scores would have a severe positive skewness (a piling up of low scores), which makes questionable the use of the mean as a measure of central tendency. However, as pointed out by McNemar (77:18) the mean has more stability and is better adapted to other statistical uses (correlation, standard scores, tests of significance, analysis of variance, etc.) than other measures such as the median or mode. Consequently the mean was employed as the description of central value in this study.

Tests of significance used. The "t" test is designed to test the hypothesis that the true difference between means is zero (64:72). It consists essentially of dividing the difference between the means by the standard error of the

difference. This was the main technique used in this study for measuring the difference between the means and the significance of the "t" values found was consequently determined from the table of the distribution of "t" prepared by Fisher and Yates and reported by Johnson (64:360).

The "t" test involves the assumption that the variances (the average of the squared deviations from the average of the group) of the scores of the groups being compared do not differ greatly. Since it could not be assumed that the variances in these scores would not differ greatly among the subgroups to be compared, the variances were calculated for each variable and the homogeneity of the variances was tested by the "F" test. This consisted of dividing the larger variance by the smaller variance and determining the significance of this value by reference to the table for the distribution of F which has been prepared by Snedecor (96:224). In comparisons in which the difference between the variances was not significant at either the five or the one per cent level, the variances were considered to be homogeneous and the "t" test of the significance of the difference between the means was consequently applied.

In comparisons in which the difference between the variances was significant at the five or one per cent levels, the variances were considered to be lacking in homogeneity and the Behrens-Fisher "d" test was used for testing the signi-

ficance of difference between the means (64:276). This test is similar to the "t" test but is designed specifically to test the significance of the difference between means when the variances are unequal or unknown.

These tests were applied to the comparison of the MMPI scores among the various work adjustment groups which will be described in Chapter IV. In order to determine the intensity of the relationships indicated by the MMPI scales whose mean scores were found to be significantly different in these comparisons, biserial correlation coefficients were computed for the scales significantly related to job satisfaction. The significance of these correlation coefficients was then determined by reference to Snedecor's table for the significance of correlation coefficients (96:125).

Summary. In this chapter the Job Satisfaction Questionnaire and the Minnesota Multiphasic Personality Inventory and the adaptation of that instrument employed in this study, have been described. The population sample was defined as consisting of 81 County Agricultural Agents and 46 4 H Club Agents who were employed by the Michigan Extension Service in September, 1950, with the exception of eight County Agents and seven 4 H Club Agents who retired, resigned or were transferred to other positions within the organization between that time and September 1, 1951. The sample is selective in that it does not include any individuals who left the service at any

time prior to that date or any who desired to become Agents and were not accepted into the organization.

The heterogenous nature of the duties and worker roles demanded of the Agents suggests that they are possibly rather heterogenous in respect to various personal characteristics, including personality factors. The mean age of the County Agents is 42.73, for 4 H Club Agents, 33.17. County Agents have 12.90 years of experience and 4 H Club Agents, 4.19. There is relatively little difference in the amount of education between the two groups.

The MMPI (adapted form) was administered to the Agents in groups. The scales were scored by the Board of Examiners scoring service, Michigan State College. Agents were mailed the Job Satisfaction Questionnaire which was manually scored. These scores and certain personal data were entered on personal data cards, then punched into IBM cards. The IBM cards were sorted by various work adjustment subgroups and the data on all variables were tabulated by these subgroups.

Means and variances were computed on all variables and comparisons of these two statistics were made between various work adjustment subgroups. The significance of the difference between variances was determined by the "F" test. Where this indicated homogeneity of variances the significance of the difference between means was determined by the "t" test and where the variances were not homogeneous, the "d" test was used.

The intensity of the relationships indicated by the significantly different mean scale scores was determined by biserial and product moment correlation coefficients. Attempts to predict "less effective" Agents and Agents with low job satisfaction scores were based upon selection of profile answer sheets whose scores were within certain criterion cutting scores on the scales which were found to have significant intensity of relationship.

## CHAPTER IV

### THE VARIABLE WORK ADJUSTMENTS GROUPS

The purpose of this chapter is to present the methods by which the County Agents and 4 H Club Agents were separated into variable work effectiveness and job satisfaction groups in order to determine the relationship of their MMPI scale scores to the two criteria of work adjustment. It was necessary in the interests of the General Research Project that the same criterion group of Agents be employed in all phases of the project. All plans for the determination of these groups and the consequent analyses of data involved were effected by members of the Planning Committee working cooperatively. Consequently, the discussion and tables that follow were the product of mutual efforts of Committee members.

Problems in rating Agents' work effectiveness. Certain problems faced in rating workers in general have been discussed by Symonds, (106) Tiffin, (108) and Thorndike (107). These problems center around the questions of minimizing bias or "halo" effect, providing adequate opportunity for observation, guarding against excessive familiarity, and assuring uniform opinion as to the concept of traits being rated. Each of these problems assumed particular prominence in this study because of conditions peculiar to the job. Predominant among these complicating factors were the following: (a) There was no established hierarchy of importance for the various job roles



demanded of the Agents, with the exception of "teaching."

(b) There were indications that individual Agents who were considered to be relatively equal in terms of over-all success varied considerably in their effectiveness in different roles.

(c) It appeared that the importance of the roles might vary in different local situations.

Various rating methods considered. The members of the Committee recognized that it would be almost impossible to accurately isolate the contribution that a County Agent made in a given situation. While the technique of conducting intensive interviews with a large sample of rural people might establish the effectiveness of Extension workers to a reasonable degree, this method was obviously impractical in terms of time and money.

It could be reasonably be argued that rural people are the best source of information as to the success of the Extension program and consideration was given to the technique of seeking ratings on the various Agents from these people whom they serve. Two problems, however, point up the lack of feasibility of this method: (a) Since many of the rural people would have little direct knowledge of the work effectiveness of Agents in areas other than their own, the goal of securing a comparative rating of an Agent's effectiveness would be

defeated. (b) The problem of selecting an unbiased sample of people to do the rating would be an effort beyond the scope of this immediate study.

Having examined these and other proposed rating methods, the Committee decided to employ the rating system now in use by the Michigan Extension Service for salary adjustment and other administrative purposes. This procedure results in ratings of job effectiveness being assigned to Agents by certain administrative personnel on the basis of various evidences of program and personal effectiveness on the job. Three sets of ratings are obtained on Michigan Extension Agents. A brief description of this rating system is included.<sup>1</sup>

#### THE MICHIGAN EXTENSION SERVICE RATING SYSTEM

Specialists' rating of the County Agents. In fulfilling his responsibility of providing scientific information to rural people through the County Agent, the Extension Specialist works closely with the Agent and can observe the effectiveness of their appropriate phases of the County Agent's work. On the basis of such observations, the Specialists annually rate the effectiveness with which the County Agents are executing the particular phases of the program for which the Specialists share responsibility.

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<sup>1</sup>For a detailed account of this rating system see Rowland R. Pierson, "Vocational Interests of Agricultural Extension Workers as Related to Selected Aspects of Work Adjustment," (unpublished Ph.D. Thesis, Michigan State College, East Lansing, 1951), 342 pp.

Because some Specialists do not work in every county in any one year, the Specialists are asked to rate only the programs in the counties in which they have worked in the previous twelve-month period. The ratings are made in terms of A (Superior), B (Good), C (Fair) and D (Poor) and are obviously more a rating of the program than a rating of the personal effectiveness of the County Agent.

Each project of a Specialist is assigned a degree of importance in each county in terms of major, average, minor or no importance to that county. This assignment of weights, is based on the most recent Census of Agriculture figures for dollar values of farm commodities with final assignment determined by a group of Service administrators influenced by their knowledge of factors peculiar to localities in Michigan. Differential weights, ranging from plus 5 to minus 5 are then assigned to the Specialists ratings of the projects.

To determine the effectiveness rating of the over-all program in each county, a single score is arrived at by totalling the algebraic weights for each project and dividing this total by the number of ratings given by the Specialists in each county. These ratings are then totaled and by dividing this total by the number of counties, an average rating score for all counties is determined. This score is then converted to percentage scores representing 100% and the single scores for each county are converted to percentage scores and compared

with this average score. The single county effectiveness scores usually range from 70 per cent of average to 130 per cent of average.

In so far, as these ratings represent the opinions of from 30-40 Specialists relative to the effectiveness of a program they constitute valid measures of the degree of effectiveness of the County Agent.

Appraisal of 4 H Club Projects. As has been previously indicated, Specialists do not have direct 4 H Club responsibilities and work less closely with 4 H Club Agents. Consequently the effectiveness of 4 H Club programs is rated in terms of the amount of money allocated to each county for 4 H Club work and the proportion of eligible youth enrolled in 4 H Club projects per county.

A formula is prepared each year by the 4 H Club Department for the equitable distribution of monies to the 4 H Clubs of the state. Situational differences among the counties are provided for by a method of classification in which counties are classified as A,B,C, or D according to the desirability of work situations. A scale of weights and a per cent of average similar to that employed in the rating of County Agent's programs is determined. With this percent of average the counties are ranked in order according to work situations, then arbitrarily divided into four classification groups according to rather obvious breaks in the percent of average figures.

Comparison of the money value of the separate projects is made only within each of the four groups of counties. The money value of the projects in a county for which a 4 H Club Agent is responsible, and consideration of the proportion of eligible youth in his county who are enrolled in 4 H Club projects, by comparison with the other 4 H Club Agents in the same group of counties, is a measure of the extent to which he has been successful in conducting his program. As in the case of the County Agent, the Extension Service felt that this type of program appraisal reflected in a degree the effectiveness of the 4 H Club Agent himself.

Rating of personal effectiveness on the job. In addition to the program rating procedures, a rating of each County Agent and 4 H Club Agent as to his personal effectiveness is obtained from the four District Extension Supervisors for the men within their respective districts. The Supervisors review the ratings assigned to the programs of their Agents and adjust these ratings in terms of all pertinent factors known to them. After the District Supervisors determine a rating of personal effectiveness for each Agent, these ratings are reviewed by the Director of Extension, who assigns a final rating which is used for various administrative purposes.

#### Rating Method Used in This Study

Although the rating system just described made no attempt to include any particular number of Agents in any particular group (e.g. forced rank-order or percentile techniques), the

Planning Committee felt that the ratings obtained would be satisfactory for the purposes of the General Research Project. Therefore, the Committee concluded that a separate modified forced ranking rating should be made by as many as possible of the same personnel who furnish the regular annual ratings.<sup>2</sup> Table 4 indicates the range of averages used as arbitrary points of separation in order to arrive at four fairly equal groups. This table also indicates the total average rating for each "quartile" group thus selected, the number of Agents in each group on whom there was perfect correlation or unanimous agreement among the judges ratings and the total number of men placed in each "quartile" group.

From Table 4 it is apparent that by considering the average of the seven judges' ratings on each man there was in most cases relatively high agreement among the judges as to the over-all work effectiveness of these men. Except in the third "quartile" of County Agents and the second "quartile" of 4 H Club Agents the spread of ratings was fairly consistent.

Although the ranges of average ratings for the first, second, and fourth groups of County Agents were almost the same, the fact that all of the judges rated twelve men as 1, and seven men as 4, indicates that in the opinions of the judges certain of the "more effective" and "less effective"

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<sup>2</sup>For a description of this technique see Pierson, op. Cit., pp. 134-136.

TABLE 4

SUMMARY OF RATINGS OF COUNTY AGENTS AND 4 H CLUB AGENTS  
BY "QUARTILE" GROUPS

	Range of Rating Averages	Total Average Rating of Groups	Unan- imous Agree- ment	Total
<u>County Agents</u>				
First "Quartile"	.57(1.00-1.57)	1.12	12	21
Second "Quartile"	.57(1.71-2.28)	2.05	3	19
Third "Quartile"	.71(2.57-3.28)	2.83	4	20
Fourth "Quartile"	.58(3.42-4.00)	3.79	7	21
<u>4 H Club Agents</u>				
First "Quartile"	.42(1.00-1.42)	1.19	5	13
Second "Quartile"	.71(1.57-2.28)	1.98	2	13
Third "Quartile"	.57(2.71-3.28)	2.92	3	13
Fourth "Quartile"	.43(3.57-4.00)	3.74	1	9

County Agents stand out rather clearly in comparison with the "in-between" Agents. This type of consistency was not as evident with the 4 H Club Agents.

Consideration of only the average rating for each of the men could of course conceal any possible discrepancies in the ratings of one or more judges as compared with the ratings assigned by the other judges. To check on the degree of variation among the judges as to their assignment of ratings, the rating data were submitted to an analysis of variance following procedures suggested by Snedecor (96:256). Tables 5 and 5a on the following page provide the results of this analysis.

TABLE 5

ANALYSIS OF VARIANCE OF THE RATINGS OF SEVEN  
JUDGES ON THE WORK EFFECTIVENESS OF  
COUNTY AGENTS (N-81)

Source of variation	Degrees of freedom	Sum of squares	Mean Square	F
Raters	6	2.4938	.4156	1.34 (a)
Individuals	80	569.1429	7.1143	23.02**(b)
Error	480	148.3633	.3091	
Total	566	720.0000		

(a) F for raters (1.34) not significant

(b) F for individuals (23.02\*\*) significant at 1 per cent level or less.

TABLE 5a

ANALYSIS OF VARIANCE OF THE RATINGS OF SEVEN  
JUDGES ON THE WORK EFFECTIVENESS OF  
4 H CLUB AGENTS (N-48)

Source of variation	Degrees of freedom	Sum of squares	Mean Square	F
Raters	6	2.1131	.3522	1.18 (a)
Individuals	47	297.1399	6.3221	21.18**(b)
Error	282	84.1726	.2985	
Total	335	383.4246		

(a) F for raters (1.18) not significant.

(b) F for individuals (21.18\*\*) significant at 1 per cent level.



Since the "F" tests of the analyses of variance in Tables 5 and 5a (1.34 for County Agents, 1.18 for 4 H Club Agents) are not significant for the raters, it may be concluded that there was no significant variation among them in their assignment of ratings. Tables 5 and 5a also indicated that there were, in the opinions of the judges, significant variance among the individuals being rated (23.02 for County Agents, 21.18 for 4 H Club Agents). This quantifies further the results shown in Table 4.

To obtain an estimate of the reliability of the ratings in Tables 5 and 5a, a method developed by Hoyt (64:134) was applied to these data. In this case, the variation among the raters is analogous to the variation among the test items in Hoyt's example and the variation among the individuals (Agents) is analogous to the variation among the scores of each individual on the test. By applying Hoyt's formula,<sup>3</sup> the correlation coefficient for County Agents is plus 0.956 for County Agents and plus 0.951 for 4 H Club Agents, indicating high reliability for these ratings. It should be pointed out that the magnitude of the coefficients is increased by the fact that they represent the estimate of the reliability of an Agent's rating as based upon the composite rating by all seven judges and not the reliability of an Agent's rating by individual raters.

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<sup>3</sup> $r_{tt} = (a-c) / a$ , where a equals mean squares between individuals and c equals mean squares between raters.

Since the average ratings for each Agent indicated relatively high agreement among the judges, since there was no significant variation among the judges as to the mean ratings which they assigned to the Agents, and since estimates of the reliability were quite high, it was concluded that this rating provided a satisfactory measure of the relative work effectiveness of the population used in this study.

The variable work effectiveness groups. Although Extension Administrators in Michigan had indicated that a number of workers were not performing satisfactorily on their jobs, these administrators felt that few, if any, Agents could be classified as "unsatisfactory" and that the actual number who were not performing satisfactorily was not a majority of either Agent group. Therefore, the Committee concluded that the lowest "quartile" rating groups of County Agents and 4 H Club Agents would more fairly represent the Agents who might be classified as "less effective" than would the two lowest "quartiles". Consequently, the various work effectiveness criterion groups of Agents established were as follows:

<u>County Agents</u>	<u>N</u>	<u>4 H Club Agents</u>	<u>N</u>
Three highest "quartiles"	60	Three highest "quartiles"	39
Highest "quartile"	21	Highest "quartile"	13
Lowest "quartile"	21	Lowest "quartile"	9

Homogeneity of the "quartile" groups. The homogeneity of these criterion groups was ascertained in terms of age and

years of experience in the Michigan Extension Service. Table 6 presents the comparison of means and variances of these two variables between the group in the three highest "quartiles" combined and the group in the lowest "quartile" as well as between the highest and lowest "quartile" groups of County Agents and 4 H Club Agents.

The most important result of the comparisons in Table 6 is the fact that the "more effective" County Agents and 4 H Club Agents did not differ significantly from the "less effective" Agents in terms of mean age or mean years of experience. There was significant variation between the highest and lowest "quartile" groups ( $F 2.36$ ) in the case of years of experience for the County Agents but in no case were the means significantly different, thus indicating that the various "quartile" groups are homogeneous in respect to these variables.

#### Rating of Job Satisfaction

##### Relationship of job satisfaction and work effectiveness.

In order to analyze the relationship of the Agents' MMPI scores to the second criterion of work adjustment, i.e. self-rated job satisfaction, the relationship of their raw scores on the Job Satisfaction Questionnaire to their work effectiveness ratings was analyzed first. This was done to investigate the possibility that if there was a significant relationship between their job satisfaction and their work effectiveness ratings, then the relationships found between their MMPI scores

TABLE 6

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $\sigma^2$ ) OF AGES AND YEARS OF EXPERIENCE  
FOR VARIOUS "QUARTILE" WORK EFFECTIVENESS RATING GROUPS OF  
COUNTY AGENTS AND 4 H CLUB AGENTS

	Highest "quartile"		Three highest "quartiles"		Lowest "quartile"		Tests of Homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d <sup>1</sup>
County Agents	(N 21)		(N 60)		(N 21)			
Age	44.05	59.91	42.40	81.78	43.66	102.56	171	0.185
					43.66	102.56	1.37	0.678
Years in Service	15.19	40.93	12.72	54.47	13.43	96.75	2.36*	0.672
					13.43	96.75	1.68	0.337
4 H Club Agents	(N 13)		(N 39)		(N 9)			
Age	34.23	41.71	33.00	64.56	33.89	49.87	1.20	0.112
					33.89	49.87	1.29	0.334

Table 6 continued on next page

TABLE 6 (Continued)

	Highest "quartile"		Three highest "quartiles"		Lowest "quartile"		Tests of Homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d <sup>1</sup>
Years in Service	5.92	29.45	4.15	15.36	4.33 4.33	19.11 19.11	1.54 1.24	0.697 0.118

\*Indicates significance at the five per cent level of confidence or less.

<sup>1</sup>The Behrens-Fisher "d" test, as explained on page 114, is used to test for significance of difference between means when variances are not homogeneous as indicated by a significantly large "F".

and their work effectiveness would indicate that a similar relationship existed between their MMPI scores and their job satisfaction. The results of this analysis are shown in Table 7 which includes the comparison of the means and variances of the raw Job Satisfaction Questionnaire scores for the various work effectiveness "quartile" groups.

Analysis of Table 7 shows that in general the mean scores for the "more effective" Agents were higher than the mean scores for the "less effective" Agents. The three highest "quartiles" of the 4 H Club Agents scored slightly higher than the highest "quartile" alone. However, the only group to score significantly higher than the "less effective" Agents was the highest "quartile" of the County Agents (t value 2.05, significant at the five per cent level or less).

Although Table 7 shows that the relationship between work effectiveness and job satisfaction is positive in both groups of Agents, it is not generally high. It was decided, therefore, that to determine more clearly the relationship between personality factors and job satisfaction it would be necessary to separate the Agents into variable job satisfaction groups on some basis other than their work effectiveness ratings. This led to the decision to establish the job satisfaction groups in terms of their scores on the Job Satisfaction questionnaire.

TABLE 7

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $\sigma^2$ ) OF RAW JOB SATISFACTION  
QUESTIONNAIRE SCORES FOR VARIOUS "QUARTILE" WORK EFFECTIVE-  
NESS GROUPS OF COUNTY AGENTS AND 4-H CLUB AGENTS

	Highest "quartile"		Three highest "quartiles"		Lowest "quartile"		Test of Homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d <sup>1</sup>
County Agents	(N 21)		(N 60)		(N 21)			
	24.38	6.65			22.52	10.56	1.59	2.05*
			23.86	5.30	22.52	10.56	1.99*	1.74
4 H Club Agents	(N 13)		(N 39)		(N 9)			
	22.54	10.29			20.77	11.44	1.11	1.24
			22.52	11.68	20.77	11.44	1.02	1.61

\*Significant at the five per cent level or less.

<sup>1</sup>The Behrens-Fisher "d" test is used when the variances are not homogeneous as indicated by a significantly large "F".

Variable satisfaction groups have been established on the basis of raw scores alone in many studies.<sup>4</sup> However, before making a separation on such as basis in this research project, it was considered desirable to determine whether or not the qualitative items represented in the raw scores of the Job Satisfaction Questionnaire indicated attitudes that could be considered as unidimensional and whether or not a point could be fixed on the continuum which would separate the Agents with positive attitudes toward their work from Agents with negative attitudes toward it.

Scale analysis. Various methods such as that of Likert (73), have been developed for this type of attitude measurement. However, a newer method developed by Guttman (45) was considered by the Planning Committee to be somewhat more appropriate for use in this study. Guttman's technique provides a test of the hypothesis that the entire universe of items forms a scale for the entire population of people. His general criterion for acceptance of this hypothesis is: "The universe is said to be scalable for the population if it is possible to rank the people from high to low in such a fashion that from a person's rank alone we can reproduce his response to each of the items in a simple fashion." (45:249)

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<sup>4</sup>See Chapter III, pp 40-43, "The Job Satisfaction Questionnaire"



Essentially, the procedure involved is that of determining the extent to which the rank order of the item responses for each question corresponds to the rank order of the individuals according to their total scores on the attitude measuring instrument. Guttman has indicated that for an attitude questionnaire to be scalable the individual items should have not more than 15 per cent error, or have reproducibility of 85 per cent, while the total scale should not have more than 10 per cent error or at least 90 per cent reproducibility (102:249). However, Eysenk and Crown (29) in a study of attitudes on anti-Semitism in Britain concluded that Guttman's 90 per cent reproducibility was too high and determined that the scale would be reproducible if no individual item exceeded 20 per cent error and the error of the total scale was not greater than 15 per cent. This criteria was selected by the Committee as satisfactory for use in this study.

As a preliminary step to the application of Guttman's technique to the job satisfaction data, the distribution of scores was determined by calculating the proportion of County Agents and 4 H Club Agents who answered the various categories of the seven job satisfaction questions. These results are presented in Table 8. This table shows that the distribution of answers was rather narrow and that most of the responses were somewhat grouped among the favorable categories for each question, thus indicating that the number of Agents expressing dissatisfaction with their jobs was small.

TABLE 8

PROPORTION OF COUNTY AGENTS AND 4 H CLUB AGENTS ANSWERING  
THE VARIOUS CATEGORIES ON THE SEVEN ITEMS ON  
THE JOB SATISFACTION BLANK

Items	Percentages	
	County Agents (N 81)	4 H Club Agents (N 48)
1. How well do you like your work?		
I like it better than most any- thing else	30.9	20.8
I like it very much	62.9	56.2
I like it fairly well	6.2	20.8
I'm indifferent to it	0.0	2.2
I don't like it	0.0	0.0
I dislike it a great deal	0.0	0.0
2. How much of the time do you feel satisfied with your occupation?		
All of the time	9.9	6.3
Almost all of the time	53.3	41.7
Most of the time	33.3	35.4
A good deal of the time	2.5	6.2
Some of the time	0.0	10.4
Very little of the time	0.0	0.0
3. How do you feel about changing your occupation?		
Would not consider changing	16.0	10.4
Might consider changing to a closely related occupation	50.6	39.6
Undecided	30.9	37.5
Am not eager to change but would consider changing to a related occupation	0.0	2.1
Would like to change to some related occupation	2.5	8.3
Would like very much to get into a completely different occupation	0.0	2.1

TABLE 8 (Continued)

		Percentages	
		County Agents (N 81)	L H Club Agents (N 48)
4.	How well satisfied are you with your occupation?		
	___ Much more satisfied than other people	14.8	25.0
	___ More satisfied than the average person	60.5	45.8
	___ As well satisfied as most people	23.5	27.1
	___ Less satisfied than the average person	1.2	0.0
	___ Much less satisfied than other people	0.0	2.1
5.	How enthusiastic are you about your occupation?		
	___ Very enthusiastic	32.1	43.8
	___ Quite enthusiastic	65.4	52.0
	___ Only mildly enthusiastic	2.5	4.2
	___ Not at all enthusiastic	0.0	0.0
6.	How important do you think your work is as compared to that of other professional people?		
	___ Very important	76.6	77.5
	___ Quite important	22.2	22.5
	___ Slightly important	1.2	0.0
	___ Undecided	0.0	0.0
	___ Not important at all	0.0	0.0
7.	How interested are you in your work?		
	___ Very interested	79.0	77.5
	___ Quite interested	21.0	22.5
	___ Only slightly interested	0.0	0.0
	___ Not interested at all	0.0	0.0

Individual question scores for each Agent were then ranked and studied for percentage of error in the following way: The various item response categories for each question were combined into two categories on the basis of combinations which would leave a minimum of overlapping and error after a cutting point had been established between the two categories.

In reference to the combining of categories, Guttman (45:256) states that "it has seldom been found that an item with four or five categories will be sufficiently reproducible if the categories are considered as distinct." He goes on to explain that combining categories to reduce error is entirely defensible if they are combined on the basis of being closely related. In keeping with Guttman's suggestions, the item response categories were then dichotomized.

Table 9 presents the results of this dichotomization of item response categories. The array of responses to item 6 was so scattered for both groups of Agents that the categories could not be established which would yield low enough error to meet the criteria of scalability. Since almost as many Agents with a low ranking on their total job satisfaction as with a high ranking tended to answer this question favorably, it appeared that it was not a discriminating item and it was therefore eliminated from further consideration in the scale analysis.

TABLE 9

DICHOTOMIZATION OF JOB SATISFACTION ITEM  
RESPONSE CATEGORIES USED FOR  
TEST OF SCALABILITY

County Agents			4 H Club Agents		
Combinations of response categories into dichotomies			Combinations of response categories into dichotomies		
Item			Item		
(1)	(a)	(0)	(1)		(0)
1	(5)	(4,3,2,1,0)	1	(5,4)	(3,2,1,0)
2	(5,4)	(3,2,1,0)	2	(5,4)	(3,2,1,0)
3	(5,4)	(3,2,1,0)	3	(5,4)	(3,2,1,0)
4	(4,3)	(2,1,0)	4	(4,3)	(2,1,0)
5	(3)	(2,1,0)	5	(3)	(2,1,0)
6	not scalable		6	not scalable	
7	(3)	(2,1,0)	7	(3)	(2,1,0)

(a) Figures 1 and 0 in parentheses indicate the weights of the combined categories.

Table 10 presents the results of the scale analysis found by using the item category combinations in Table 9 and establishing for each question, cutting points in the rank order of the Agents which allowed a minimum of over-lapping of scores, e.g., a minimum of error.

From Table 10 it will be noted that for County Agents, items 1 and 3 are well over Guttman's individual item error maximum of 15 per cent, that items 2 and 5 are slightly over the maximum, but that items 4 and 7 meet this criterion. For 4 H Club Agents, items 3, 5, and 7 exceed the maximum per cent of error, while items, 2, 2, and 4 are within the maximum. For both groups of Agents there is greater non-error than error in the array of scores.

In attempting to reduce these percentages of error, a second trial ranking of Agents was made in keeping with Guttman's technique. This was done on the basis of the Agents' new total scores which were computed after assigning new weights to their item responses in terms of the dichotomized item response categories. Weights of 1 and 0 were assigned to the category combinations as listed under (1) and (0) in Table 9.

This re-ranking resulted in a reduced percentage of error for the total County Agent Questionnaire responses and for five of the six individual questions.<sup>4</sup> The per cent

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<sup>4</sup>Illustration of the scale analysis of the dichotomized six item Job Satisfaction Questionnaire for the second trial ranking appears in Pierson, op. cit., p. 164.

TABLE 10

SCALE ANALYSIS OF THE FIRST TRIAL RANKING OF THE SIX ITEM  
 JOB SATISFACTION QUESTIONNAIRE FOR COUNTY  
 AGENTS AND 4 H CLUB AGENTS

Item	County Agents			4 H Club Agents		
	Nonerror/error Categories			Nonerror/error Categories		
	% of Error			% of Error		
		(1)	(0)		(1)	(0)
1	22.2	13/2	50/6	6.25	35/2	10/1
2	16.0	48/4	20/9	10.41	22/1	21/4
3	24.6	39/15	22/5	20.83	14/10	23/1
4	14.8	53/8	16/4	14.51	29/5	112/2
5	16.0	22/4	46/9	22.92	18/3	19/8
7	13.5	57/7	13/4	18.75	32.5	7/4
Total	117.9			11.95		

of error for item 2 rose from 16 to 17 per cent. Items 1, (16%), 2 (17%), and 3 (19%) still did not meet the Guttman criteria but were within the Eysenk and Crown limits of 20 per cent. All of the Categories had more non-error than error, the marginal frequencies were adequate (the lowest was 21 per cent), and the pattern of error was reasonably random. The reproducibility of the total scale for Agents is 86.1 per cent which is within the Eysenk and Crown criteria.

The results of the second trial rank for 4 H Club Agents produced somewhat different results.<sup>5</sup> The per cent of error was higher in this re-ranking for each question but number 7, which remained the same (18.7%). Also the total error was higher and yielded an 81.3 percentage of reproducibility, which is below the 85 per cent criterion of Eysenk and Crown. All of the categories had greater non-error than error, the marginal frequencies were satisfactory, and the pattern of errors was reasonably random. Nevertheless, the reproducibility is such that it must be concluded that the job satisfaction attitudes expressed by the 4 H Club Agents in the questionnaire used in this study are not scalable.

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<sup>5</sup>Ibid, p. 166.



Reliability of Scales. The maximum likelihood estimate (64:127) of the split-half reliability of the questionnaire for the County Agents when corrected by the Spearman-Brown Prophecy formula was found to be plus 0.7; and for the 4 H Club Agents plus 0.69. The scaled version of the scores was found to have an estimated reliability of plus 0.80 for the County Agents. This reliability was Guttman's  $L_4$  estimate of the "lower bound" of the parameter value of the reliability coefficient (102:300). It is to be expected that the reliability for the 4 H Club Agents would be lower than for the County Agents since their scores failed to meet the criteria for scalability. However, these reliabilities appeared to be high enough for purposes of studying group differences.

Validity. No direct means of testing the validity of the Job Satisfaction Questionnaire are known to this writer. Krech and Crutchfield (70:209) state that "the validity of measurement of beliefs and attitudes can be determined only indirectly." Hoppock concludes in discussing the validity of his Job Satisfaction Blank (53:261) that a test of its validity "cannot be expected until there is developed a valid technique of measurement which is independent of the worker's willingness to tell the truth." The ultimate test in the present study would be the accuracy with which the questionnaire would predict the Agents' behavior toward their jobs.

Both overt and verbal behavior should be considered in this respect for expressed attitudes frequently are not translated into overt action. Even if satisfactory techniques were available for observing these kinds of behavior, the considerations of time and money would preclude sufficient observations for this study.

Indirect validation by consideration of the attitudes of "known" groups, as suggested by Krech and Crutchfield (70) and Murphy, Murphy and Newcomb (85), provides some basis for establishing validity for the Job Satisfaction Questionnaire. Krech and Crutchfield indicate that an attitude measurement instrument is assumed to be valid if it differentiates certain defined types of people in a direction expected on a priori grounds. It might be expected that Extension workers would have a relatively high degree of job satisfaction on such a priori grounds as: that Agents select their occupations voluntarily and continue in them voluntarily even though by virtue of their training and experience they could change to other types of work rather easily; that they realize considerable satisfaction in performing a useful service to society; and that since their work calls for maintaining friendly relationships with many people, intense dissatisfaction preclude success in their work. That the Agents indicated relatively high satisfaction with their work may, therefore,

offer some basis for assuming that the questionnaire is reasonably valid.

In view of the apparent lack of direct means of validating the questionnaire it was necessary in this study to assume that it had satisfactory validity. Symonds (106:233) states in this respect that "there is every reason for taking the results of an attitude questionnaire at face value as an expression of opinion, particularly when no immediate issue is at stake."

Intensity analysis. The Guttman technique, in addition to rank ordering individuals, also provides through "intensity analysis" a cutting point in the rank order such that individuals may be considered as "favorable" or "unfavorable" in their attitude toward an issue. Guttman points out (45:311) that a "rank order alone does not distinguish between being more favorable and less favorable."

The intensity score in this study was derived from the weights assigned to the responses to the separated intensity questions which are subgroups of the job satisfaction questions.<sup>6</sup>

Intensity analysis is a cross tabulation of the scaled score ranking of individuals or the "content" score and the intensity score. The curve formed by joining the median

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<sup>6</sup>This process is explained in detail in Pierson, op. cit. p. 172.

intensity score forms the intensity component. The usual curve is in the form of a U or J with people at either end indicating stronger feelings than those in the middle. The zero or neutral point lies at the bottom of the curve and is a broad region or relative indifference or neutrality. If the curve forms a V, there is indication that the population is sharply divided on this issue.

Intensity analysis of the job satisfaction responses of County Agents indicated that according to the questionnaire used in this study, there is practically no intense job dissatisfaction among that group.<sup>7</sup> However, the scores were so distributed that an arbitrary classification of the County Agents into relative job satisfaction groups was determined as follows: (a) Those with scores of zero or one (16 per cent) have "low" job satisfaction or are indifferent to their jobs, (b) those with scores of 2 or 3 (29.6 per cent) have "medium" job satisfaction and (c) those with scores of 4, 5, or 6 (54.4 per cent) have "high" job satisfaction.

Due to the scores of 4 H Club Agents failing to meet the criteria for scalability, the attempted intensity analysis for this group did not indicate the proper relationship between the scaled scores and the intensity scores.<sup>8</sup>

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<sup>7</sup>The results of this intensity analysis are contained in Pierson, op. cit., p. 174.

<sup>8</sup>Ibid, p. 175.

Selection of satisfaction groups: Since few, if any Agents could be described as being dissatisfied in their jobs in so far as their responses to the Job Satisfaction Questionnaire were concerned, it was, of course, implicit that a separation of Agents into variable satisfaction groups would represent "more" and "less" satisfied rather than "satisfied" and "dissatisfied" groups. Because the separation would therefore be on the basis of relative satisfaction it was considered desirable for comparison purposes to separate the Agents into groups of fairly equal size.

Since the responses of the County Agents were found to be scalable, the group was separated on the basis of the scaled version of their raw scores. By separating between intensity scores of 3 and 4, the "more satisfied" group contained 44 Agents and the "less satisfied" group contained 37 Agents.<sup>9</sup> This arbitrary division then provided two satisfaction groups of County Agents for the analysis of the relationship between personality patterns and job satisfaction.

As the Job Satisfaction Questionnaire responses of the 4 H Club Agents failed to meet the tests of scalability, the scaled scores could not be used for the determination of relative satisfaction groups. However, the distribution of raw scores indicated considerable range in responses, which al-

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<sup>9</sup>This data appears in detail in Pierson, op. cit., p. 176

though not satisfactorily unidimensional, could be considered as indicating varying degrees of job satisfaction. This range of raw scores extended from a low of 14 to a high of 29.<sup>10</sup> Separation between score 22 and 23 provided twenty-six Agents in the "more satisfied" and twenty-two in the "less satisfied" groups to be used for comparison of personality patterns and job satisfaction.

Homogeneity of the satisfaction groups: The homogeneity of the variable satisfaction groups in respect to age and years of experience in the Michigan Extension Service was tested and is shown in Table 11. This table indicates the comparison of the means and variances of the two satisfaction groups of County Agents and the two satisfaction groups of 4 H Club Agents.

It is apparent from Table 11 that the satisfaction sub-groups were not significantly different in terms of age, but that both the "more satisfied" County Agents and 4 H Club Agents have had significantly longer experience in the Michigan Extension Service than have the "less satisfied" Agents. This points to a direct relationship between length of service and job satisfaction. However, before it could be concluded that liking for the work actually increases with the amount of time spent in it, it would be necessary to

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<sup>10</sup> A frequency distribution of these scores appears in Pierson, op. cit., p. 178.

TABLE 11

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $\sigma^2$ ) OF  
 AGES AND YEARS OF EXPERIENCE FOR VARIABLE  
 SATISFACTION GROUPS OF COUNTY AGENTS  
 AND 4 H CLUB AGENTS

	"More satisfied"		"Less satisfied"		Tests of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d (a)
County Agents	(N 44)		(N 37)			
Age	43.70	83.75	41.37	92.58	1.10	0.04
Years of experience	15.29	72.31	11.40	65.19	1.11	2.10*
4 H Club Agents	(N 26)		(N 22)			
Age	34.65	78.00	31.40	42.73	1.83	0.63
Years of experience	5.26	24.44	2.90	4.47	5.47**	2.20*

\*Significant at the five per cent level or less.

\*\*Significant at the one per cent level or less.

(a) The Behrens-Fisher "d" test is used to test for significance of difference between means when variances are not homogeneous as indicated by a significantly large "F".

determine the proportion of "less satisfied" Agents who continue in the work but with no evident increase in satisfaction.

Summary: Variable work effectiveness groups of Agents were established on the basis of a modified forced ranking rating by a panel of seven judges who had had adequate opportunities to observe the work of the Agents and most of whom had participated in the annual rating of the Agents which is conducted for administrative purposes. The judges ranked each Agent in one of four fairly equally sized groups ranging from high to low in terms of comparative over-all success on the job. There was high consistency among the judges as to their "quartile" ratings of the Agents. There also was no significant lack of homogeneity among the "quartiles" of each group of Agents in respect to age and years of experience in the Michigan Extension Service.

Variable job satisfaction groups were established on the basis of their Job Satisfaction Questionnaire scores, since the relationship between job satisfaction and work effectiveness was not generally high. The raw scores were submitted to a scale and intensity analysis. The scores of the County Agents were found to be scalable, but there was no indication of intense dissatisfaction. The raw scores of the 4 H Club Agents failed to meet the criteria of scalability but the range of scores indicated that varying degrees of satisfaction were represented.



The reliability of the Job Satisfaction Questionnaire with the two groups of Agents appeared to be high enough for purposes of studying group differences. It was necessary to assume validity for the instrument since no direct means of validating measures of attitude were available to the writer.

The County Agents were separated into fairly equally sized "more satisfied" and "less satisfied" groups by selecting an arbitrary cutting point in the distribution of the scaled version of their raw scores and the 4 H Club Agents were similarly separated by an arbitrary cutting point in the distribution of their raw scores. There was no lack of homogeneity between the satisfaction groups of either the County Agents or the 4 H Club Agents in respect to age, but the "more satisfied" Agents had significantly longer experience in the Michigan Extension Service than did the "less satisfied" Agents.

## CHAPTER V

## PERSONALITY PATTERNS OF THE AGENTS

The purpose of this chapter is to describe the personality patterns of the County Agricultural Agents and 4 H Club Agents as determined by the Minnesota Multiphasic Personality Inventory.

## Description of the Agents' Personality Patterns

Mean MMPI scores. The mean scores of the total group of County Agents and the total group of 4 H Club Agents on the 14 MMPI scales employed in this study were computed as the first approach to a description of their personality patterns. The mean scores on the six clinical scales selected for use in the present study, together with the standard deviations are presented in Table 12.

A study of Table 12 reveals that the personality traits of the two groups are, in general, similar, and that the means of the study groups do not vary greatly from the means of the groups upon which the MMPI scales were standardized. Although none of the mean scores exceeded the standard score mean by more than one sigma, the County Agents tended to score higher than the norm group on the Hysteria, Hypochondriasis, and Depression scales, while the 4 H Club group tended to score higher than the norm group on the Psychopathic deviate, Hysteria, and Hypomania scales.

TABLE 12

MEAN STANDARD SCORES AND STANDARD DEVIATIONS FOR  
81 COUNTY AGENTS AND 46 4 H CLUB AGENTS ON  
SIX MMPI CLINICAL SCALES\*

MMPI Scales	County Agents		4 H Club Agents	
	Mean Standard Score	Standard Deviation	Mean Standard Score	Standard Deviation
Hypochondriases	54.02	9.31	51.02	8.53
Hysteria	56.10	6.76	57.76	7.16
Depression	53.00	11.39	49.20	11.69
Psychopathic Deviate	51.25	8.00	57.27	8.02
Psychasthenia	52.98	8.26	51.35	8.93
Hypomania	51.51	9.24	56.33	9.66

\*Mean standard scores of the population on which the scales were standardized were 50 and the standard deviations were 10. Starke R. Hathaway and J. C. McKinley, Manual for the Minnesota Multiphasic Personality Inventory, New York: The Psychological Corporation, 1946, pp. 10-12.

Table 13 presents a comparison of mean standard scores of the County Agent and 4 H Club Agent group and a college population on certain MMPI scales. An analysis of Table 13 reveals a similar tendency for the group means of other populations to center around a T-score of 50. Blum's (12) population involving 125 randomly selected professional students registered a high mean T-score of 56.8 (also on Hysteria) and a low of 43.2 (Depression) when compared on clinical scales that were used in this study. When all nine clinical scales employed by Blum were considered, only the Masculinity-Femininity scale scores approached one standard deviation above the mean.

A comparison with Blum's (12) college student population indicates that the County Agent group registered higher mean T-scores on the Hypochondriasis, Depression and Psychasthenia scales whereas the 4 H Club Agents had higher Hysteria, Psychopathic Deviate and Hypomania scores. Thus, on all six clinical scales for which there was corresponding data, the highest scores were recorded in the Agent groups. This is particularly meaningful when it is recalled that the previously described validity scales were not included in this study but were utilized by Blum.

No published studies of a college male population were available for comparison purposes. Consequently Stout's investigation of MMPI profiles of college men and women (101) and Tyler's factor analysis of MMPI scores of female graduate

TABLE 13

A COMPARISON OF MEAN STANDARD SCORES OF 125 MALE STUDENTS  
OF FIVE SELECTED PROFESSIONS, 81 COUNTY  
AGENTS AND 4 H CLUB AGENTS

MMPI Scale	125 Professional Students <sup>1</sup>					County Agents	4 H Club Agents
	Educ.	Mech.Engr.	Journalism	Medicine	Law	(N 81)	(N 46)
Hypochondriasis	45.9	46.4	49.2	50	49	54	51
Hysteria	51.5	56.8	54	54.9	55.4	56.1	57.8
Depression	51.5	43.2	51.2	50.8	47.8	53	49.2
Psychopathic Deviate	48.7	51.	50	51.4	49.5	51.3	57.3
Psychasthenia	48.9	47.2	48.4	50.3	47.3	53	51.4
Hypomania	55.1	54.	49.2	49.5	52.1	51.5	56.3

<sup>1</sup> Adapted from-----Lawrence P. Blum, "A Study of Five Selected Professions," Journal of Experimental Education, 16:31-65, 1947.

students (111) are cited. Both studies discovered ranges of scale scores and cluster tendencies similar to those exhibited by both Agent groups. Stout found a T-score range from a high of 57 (Ma) to a low of 46 (Hs) while Tyler's (111) population revealed a range from a high of 54 (Hy) to a low of 44 (Hs).

The tendency for college students and college graduates to peak on Psychopathic Deviate, Hysteria and Hypomania scales has been frequently noted by other investigators (16). In a review of six studies involving the use of the MMPI with college and post-college populations, Brown (16) observed that "unlike the abnormal profile where D is usually the high point, these college profiles have Hy higher than Hs or D." Gilliland and Colgin (31) reported that 600 Northwestern University students in all groups, scored above the mean in the Hysteria component, in 13 out of 14 groups the means were above 50 in Paranoia, and in 11 out of 14 groups were above 50 in Hypomania. Gilliland and Colgin (31) offered the Hypothesis that college students are less inhibited than other groups as explanation for a tendency of that population group to register higher scores on MMPI clinical scales.

It is quite possible that college students are less inhibited and freer to give answers which indicate deviations from normality. They seemingly have less at stake in answering a personality questionnaire than hospital patients, job applicants and service personnel. The time proximity of

the 4 H Club Agent to the college environment would suggest that many of the same factors may be continuing to influence the Agents' self-perception, just as these factors tend to make their influence felt in the general college population.

A second step in describing the personality patterns of the Agent group involved the computing of mean scores and standard deviations registered on each of the eight social scales. This data is presented in Table 14.

At the time these data were compiled, the writer was unable to secure information concerning the standard scores on these social scales in any comparable group. Consequently, in order to establish a comparable norm group for this study and in order to contribute to the limited and yet inconclusive research which has been carried on with these scales, the writer administered the MMPI to approximately 200 male students in the Basic College at Michigan State College. These students were mainly freshmen and sophomores enrolled in various sections of the Effective Living course which is required of all students at the institution. It was thus believed that the group represented a reasonably accurate sampling of male, college students, principally at a period before the process of academic suspension has reduced the population to any extent. From this group of test scores, standard or T-scores were established for the purpose of this study.

TABLE 14

MEAN STANDARD SCORES AND STANDARD DEVIATIONS FOR  
81 COUNTY AGENTS AND 46 4 H CLUB AGENTS ON  
EIGHT MMPI SOCIAL SCALES\*

MMPI Scales	County Agents		4 H Club Agents	
	Mean Standard Score	Standard Deviation	Mean Standard Score	Standard Deviation
Prejudice	44.57	7.37	43.77	8.38
Academic Achievement	52.28	12.02	52.96	11.35
Social Status	44.63	9.27	47.15	7.43
Responsibility	59.58	8.67	57.28	10.27
Dominance	47.31	10.21	48.91	11.80
Social Participation	47.97	8.39	54.87	7.43
Intellectual Efficiency	51.57	7.72	56.04	7.11
Success	53.87	9.01	54.30	9.62

\*Mean standard scores of the population on which the scales were standardized for the purposes of this study were 50 and the standard deviations were 10.



A study of Table 14 reveals that the Social Scale scores of both County Agents and 4 H Club Agents exhibit a tendency to cluster around the mean similar to that exhibited on the clinical scales. Although highly selective processes have operated upon the individual who eventually becomes an Extension Agent, it would appear that neither Agent group varies greatly from the under-graduate population in the matter of personality patterns as measured by the MMPI. County Agents show the greatest differences (but not significant ones) from this control group in Responsibility, Status and Prejudice while 4 H Club Agents deviate most on Responsibility, Intellectual Efficiency and Prejudice. Scores for both groups remain within one standard deviation, plus or minus, of the standard score mean on all scales with only the County Agents mean score of 58.58 on the Responsibility scale approaching that limit.

It is possible that the peak mean score of County Agents on the Responsibility component could represent the effects of employment, age and the total maturational process upon individuals. Since the control group for the social scales consisted of male college students in their freshman and sophomore years, it may be anticipated that many of the social and economic pressures highly important in contributing to an individual's feelings of responsibility are not as highly developed in the early college environment as in the individual who has completed his education, and has several years of

experience on the job. It is also important that the role of selectivity be acknowledged in that the County Agent represents the product of several selective processes, including the normal attrition that occurs in a college student body, the selection involved in the individuals acceptance for training by the School of Agriculture and the choice for employment and promotion in the Extension Service itself.

Mean scores of County Agents differed from the control group most widely in a minus direction on the Status and Prejudice scales. Although the significance of minus deviations on the social scales has not been thoroughly established, it would appear that the under-graduate male views his status within his group and community with greater optimism than does the County Agent view his comparable role. Gough (34) hypothesized that "there are certain personality factors characteristically related to sociological categories; once these personality factors have been empirically isolated they may be presumed to be present in some degree among persons assignable to the class according to some other defining property."

In general, the County Agent is found to be an individual with several years of work experience and community membership on an adult basis. Quite probably he has reorganized self-concepts of his peculiar role within the community.

Values which he may have held as a college student quite possibly have been reorganized and resystematized in the light of changing criteria of the adult social group to which he now belongs.

In evaluating the County Agents' apparently below-average feelings of prejudice, it is necessary to remember that the control group involved were, for the most part, first and second year college males. Many of the educational and social processes of the college environment that are associated with developing tolerance and reducing prejudice may have only begun to affect the norm group subjects. Conversely, the County Agent represented at least four years of contact, frequently more, with these processes. By virtue of his expanded experience in working with people on a service basis, he could be expected to approach the problem of individual differences with somewhat altered perception. However, the factors involved in the development and reduction of prejudice are so varied and complex that further investigation of cause and effect relationship within these groups should be undertaken.

The role of these factors in influencing Responsibility and Prejudice scores would seem to assume added importance when one considers the 4 H Club group recorded its highest and lowest scores on the Responsibility and Prejudice components, also. Although the differences were not significant, the 4 H Club mean standard score on Responsibility was some-

what lower (57.28 versus 59.58) while the County Agents' mean standard score on Prejudice was higher (44.57 versus 43.77). The 4 H Club Agent group, in general, is composed of younger men (33.17 years versus 42.73 years) with less work experience (4.19 years versus 12.90 years) than the County Agent group and thus more nearly resembles the male college control group.

Thus, the similarity of the trends of both groups on these scales would seem to indicate the influence of somewhat the same factors that apparently were operating in the County Agent population. The 4 H Club Agent, although like the County Agent in many variables is, generally speaking, younger and less experienced than the County Agent. In many aspects, i.e., age, work experience, time proximity to the college environment, etc., he more nearly resembles the college student, consequently greater mean differences from the control population may quite likely be the product of these factors.

Elsewhere, the tendency for college trained individuals to record higher Responsibility scale scores and lower Prejudice scale scores has been noted (16).

Table 15 presents a comparison of social scale scores of a group of female graduate students in education and the study groups of Agents. Although the population of this study is entirely male, the absence of data on a like population would seem to justify this type of comparison.

TABLE 15

A COMPARISON OF MEAN STANDARD SCORES OF 107 FEMALE  
GRADUATE EDUCATION STUDENTS, 81 COUNTY AGENTS  
AND 46 4 H CLUB AGENTS ON FIVE MMPI SCALES

MMPI Scales	Graduate Students	County Agents	4 H Club Agents
	(N 107)	(N 81)	(N 46)
Social Status	64	44	47
Prejudice	37	44	43
Academic Achievement	51	52	52
Responsibility	63	59	57
Dominance	63	47	48

When it is considered that the female population and the groups of this study represent those types of personalities attracted to educational service professions, the differences in T-score range assumes meaning in relation to sex differences and differences in educational status. In all likelihood, the Gilliland and Colgin hypothesis (31) may be valid in explaining social score deviations as well as for clinical scale differences between college and non-college populations. Similarly, differences in mean standard clinical scale scores between men and women in corresponding populations has been noted by investigators (31,16).

Profile analysis. Analysis of the Agents' profile answer sheets was employed as a third method of describing their personality patterns. This step served to describe personality patterns in terms of individual scale score distribution and acted as a check on possible distortions by extreme scores that would not be apparent in consideration of mean scores alone. Identification of potential "abnormal" patterns among individual Agents is also possible from this analysis. The authors of the MMPI (48) felt that:

Most abnormal subjects score above 70 on one or more of the present scales. The majority of clearly abnormal persons score above 70 on two or more scales ... Clearly normal persons do not often score above 70 but if environmental pressure is small or if other personality factors are favorable, a person may score above 70 and yet escape need for special attention.

While the social scales of this instrument have not yet been given any such clearly defined delineation, it is generally believed that those scores deviating from the mean standard score of 50 by as much as two sigmas (T-score 70) represent reasonably "abnormal" patterns.

Table 16 presents the distribution and percentage of County Agents' scores on the six clinical and eight social scales utilized in this study. Study of the Table reveals that those scales on which individuals in this group most often exceed two sigmas above the mean were Hypochondriasis (7.4%), Depression (8.6%), and Responsibility (14.8%). Scores two sigma or more below the mean were recorded most often on Status (6.2%) and Achievement (4.9%). The mean

TABLE 16

DISTRIBUTION OF STANDARD SCORES OF 81 COUNTY  
AGENTS ON FIFTEEN MMPI SCALES

MMPI Scales	70+		69-60		59-41		40-31		30-	
	No	%	No	%	No	%	No	%	No	%
Hypochondriasis	6	7.4	9	11.1	64	79.0	2	2.5	0	0
Hysteria	2	2.5	18	22.2	58	61.6	3	3.7	0	0
Depression	7	8.6	12	14.8	55	68.0	6	7.4	1	1.2
Psychopathic Deviate	0	0	14	17.3	63	77.8	4	4.9	0	0
Psychasthenia	3	3.7	11	13.6	66	81.5	1	1.2	0	0
Hypomania	1	1.2	10	12.3	61	75.3	8	9.9	1	1.2
Intellectual Efficiency	0	0	4	4.9	68	84.0	9	11.1	0	0
Social Participation	0	0	1	1.2	63	77.8	17	21.0	0	0
Dominance	2	2.5	4	4.9	60	74.1	12	14.8	3	3.7
Responsibility	12	14.8	18	22.2	48	59.3	3	3.7	0	0
Prejudice	0	0	1	1.2	60	74.1	20	24.7	0	0
Status	0	0	3	3.7	62	76.5	11	13.6	5	6.2
Achievement	1	1.2	14	17.3	57	70.4	5	6.2	4	4.9
Success	1	1.2	19	23.5	52	64.2	9	11.1	0	0

score was surpassed one sigma or more most often by the total Agent group on Responsibility (37%), Depression (25.4%), Hysteria (24.7%), Success (24.7%), whereas scores one sigma or more below the mean were recorded most often on Prejudice (25.9%), Social Participation (21%), and Status (19.8%).

A comparison of this distribution with the County Agents' mean standard scores reveals that extreme scores have had the greatest influence on the Depression and Social Status scales. Twenty-five and four-tenths per cent of County Agents exceeded the mean by one sigma and eight and six-tenths per cent surpassed two sigmas, yet the mean standard score for the group on this scale was 53.00. Likewise, 24.7 per cent of this group scored in excess of one sigma plus on the Success scale while the mean standard score obtained was 53.87.

A similar comparison of the distribution and percentage of 4 H Club Agents' scale scores is presented in Table 17. It is apparent from the Table that this group tended to record scores above the mean in greater concentration than did the County Agents. Scores of two sigma plus occurred most frequently on Hypomania (10.9%), Hysteria (8.7%), and Responsibility (8.7%), whereas two minus sigma scores were so infrequent that only three such scores were recorded and these were scattered. Scores of one sigma plus were registered by proportionately large numbers of 4 H Club Agents on Responsibility (67.7%), Hysteria (37%), Hypomania (34.8%), Intellectual Efficiency (34.8%), and Social Participation (32.6%) while scores of one



TABLE 17

DISTRIBUTION OF STANDARD SCORES OF 46 L H CLUB  
AGENTS ON FIFTEEN MMPI SCALES

MMPI Scales	70+		69-60		59-41		40-31		31-	
	No	%	No	%	No	%	No	%	No	%
Hypochondriasis	3	6.5	0	0	42	91.3	1	2.2	0	0
Hysteria	4	8.7	13	28.3	27	58.7	2	4.3	0	0
Depression	2	4.3	4	8.7	30	65.2	9	19.6	1	2.2
Psychopathic Deviate	0	0	9	19.6	31	67.4	6	13.0	0	0
Psychasthenia	1	2.2	4	8.7	38	82.6	3	6.5	0	0
Hypomania	5	10.9	11	23.9	28	60.9	2	4.3	0	0
Intellectual Efficiency	0	0	16	34.8	26	56.5	4	8.7	0	0
Social Participation	0	0	15	32.6	30	65.2	1	2.2	0	0
Dominance	0	0	2	4.3	38	82.6	6	13.0	0	0
Responsibility	4	8.7	27	58.7	14	30.4	0	0	1	2.2
Prejudice	0	0	2	4.3	21	45.7	23	50.0	0	0
Status	0	0	1	2.2	38	82.6	6	13.0	1	2.2
Achievement	3	6.5	8	17.4	29	63.1	6	13.0	0	0
Success	2	4.3	9	19.6	31	67.4	4	8.7	0	0

sigma minus were found most often on Prejudice (50%), Depression (21.8%), and Status (13.5%).

Any tendency for extreme scores to distort the mean standard score is not so apparent in the case of the 4 H Club Agents. For the most part, those scales which received the highest percentage distribution of scores of one sigma plus or minus also tended to achieve the higher mean standard score. Only in the case of Depression, on which 21.2 per cent of the group had scores one or more sigmas minus was this influence even mildly in effect.

Summary of description of Agents' personality patterns.

The results of the foregoing methods of description of the Agents' personality patterns may be summarized as follows:

- (a) In general, the patterns of the two groups of Agents are somewhat similar.
- (b) In general, the patterns of the two groups resemble those of populations of similar educational status.
- (c) Both groups tend to record higher mean standard scores on the Hysteria and Responsibility scales.
- (d) The 4 H Club Agents tend to register the higher mean standard scores, with greatest differences occurring on the Psychopathic Deviate, Hypomania, Social Participation scales.
- (e) Both groups have consistently low scores on the Prejudice scale.

## CHAPTER VI

THE RELATIONSHIP BETWEEN MMPI SCORES  
AND WORK EFFECTIVENESS

The purpose of this chapter is to discuss the relationship between Agents' MMPI scale scores and rated work effectiveness resulting from executing the procedures and techniques described in Chapters III and IV.

County Agents. A comparison of the means and variances on fourteen MMPI scales for County Agents rated in the three highest "quartiles" and the lowest "quartile" on work effectiveness is presented in Table 18.

From Table 18 it may be noted that County Agents who were rated in the lowest "quartile" on work effectiveness recorded scores that are significantly higher than for County Agents rated in the three highest "quartiles" on Hypochondriasis (59.24 versus 52.29) and Hysteria (57.43 versus 53.07). The difference in the mean scores on the Hypochondriasis scale was significant at the two per cent level of confidence while the difference in mean scores for the Hysteria scale was significant at the five per cent level of confidence. The mean scores for the higher rated Agents were not significantly higher than those for the lower rated Agents on any scale.

In order to analyze differences in the scale scores of the two extreme work effectiveness groups, the means and variances of the MMPI scores for the highest and lowest "quartile" groups were compared. These results are shown in Table 19.

TABLE 18

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $\sigma^2$ ) ON 14 MMPI SCALES  
 FOR COUNTY AGENTS RATED IN THE THREE HIGHEST "QUARTILES"  
 AND THE LOWEST "QUARTILE" ON WORK EFFECTIVENESS

MMPI Scales	Three highest "quartiles" (N 60)		Lowest "quartile" (N 21)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Hypochondriasis	52.29	77.21	59.24	135.39	1.76*	2.39**
Hysteria	53.07	37.88	57.43	67.86	1.78*	2.15*
Depression	51.60	115.16	54.81	131.46	1.14	1.09
Psychopathic Deviate	51.30	91.21	50.24	81.99	1.11	.45
Psychasthenia	52.60	62.94	53.95	66.35	1.05	.62
Hypomania	51.90	90.22	50.24	67.19	1.34	.76
Intellectual Efficiency	51.85	59.76	50.48	61.86	1.04	.68
Social Participation	47.76	62.13	48.05	69.15	1.11	.80

TABLE 18 (Continued)

MMPI Scales	Three highest "quartiles" (N 60)		Lowest "quartile" (N 21)		Test of Homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Prejudice	43.93	55.00	46.24	33.40	1.65	1.44
Dominance	46.35	131.25	49.43	85.76	1.53	1.12
Responsibility	58.76	85.30	61.71	46.21	1.84	1.52
Status	45.67	78.93	44.33	106.93	1.35	.52
Achievement	52.18	167.64	53.48	129.66	1.29	.42
Success	53.14	75.25	56.00	89.90	1.18	1.09

\*Significant at five per cent level or less

\*\*Significant at two per cent level or less.

A study of Table 19 indicates that the mean scores of County Agents who were rated in the lowest "quartile" were significantly higher than those rated in the highest "quartile" on Hypochondriasis (59.24 versus 53.00), Hysteria (59.43 versus 55.48), and one of the social scales, Dominance (49.43 versus 42.90). All of these differences are significant at the five per cent level of confidence. The highest rated "quartile" of County Agents did not score significantly higher than the lowest "quartile" on any scale.

A comparison of Tables 18 and 19 reveals that consistently significant differences in mean scores on Hypochondriasis and Hysteria are registered by the lowest "quartile" on rated work effectiveness. These scales comprise two-thirds of the "neurotic triad" on the MMPI, with Depression representing the other component (48). While the mean standard scores of this lowest "quartile" group did not differ significantly from either comparison group on Depression, they were higher in both instances (54.81 versus 51.60 and 53.14). Cook and Wherry (21) in their factor analysis of the MMPI found Hypochondriasis values positively correlated with a tendency toward personality maladjustment (.79) and Hysteria scores positively related to the same tendency (.28), to a tendency toward over-activity (.43) and to a tendency toward Paranoia. Tylers (111) factor analysis of the instrument led him to conclude that "elevated scores on the 'neurotic triad' might be termed a conflict factor because it seems to suggest a conflict between opposing

TABLE 19

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $s^2$ ) ON 14 MMPI SCALES  
FOR COUNTY AGENTS RATED IN THE HIGHEST "QUARTILE" AND  
THE LOWEST "QUARTILE" ON WORK EFFECTIVENESS.

MMPI Scales	Highest "quartile" (N 21)		Lowest "quartile" (N 21)		Test of homogeneity	
	$\bar{x}$	$s^2$	$\bar{x}$	$s^2$	F	T
Hypochondriasis	53.00	60.80	59.24	135.39	2.23*	2.23*
Hysteria	55.48	24.76	59.43	67.86	2.74*	2.08*
Depression	53.14	80.53	54.81	131.46	1.63	.51
Psychopathic Deviate	51.38	69.75	50.24	81.99	1.18	.41
Psychasthenia	54.48	67.06	53.95	66.35	1.01	.20
Hypomania	53.29	131.01	50.24	67.19	1.95	.98
Intellectual Efficiency	50.95	48.35	50.48	61.86	1.28	.21
Social Participation	45.81	38.06	48.05	69.15	1.82	.97

TABLE 19 (Continued)

MMPI Scales	Highest "quartile" (N 21)		Lowest "quartile" (N 21)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	T
Prejudice	47.71	64.91	46.24	33.40	1.94	.67
Dominance	42.90	37.45	49.43	85.76	2.29*	2.10*
Responsibility	60.00	96.00	61.71	46.21	2.08	.63
Status	42.95	45.65	44.33	106.93	2.34*	.49
Achievement	54.76	151.29	53.48	129.66	1.17	.30
Success	53.29	72.71	56.00	89.90	1.24	.97

\*Significant at the five per cent level or less.



tendencies. Dissatisfaction appears to be present in the various scales contributing to this factor; with dissatisfaction is a tendency toward excessive self-control." To the extent that the lowest "quartile" group tends to also be less satisfied with their work, these findings could be considered to be in line with anticipated results.

Verniaud (113) in a study of clerical workers discovered lower mean scores on Hypochondriasis for this group when compared with salespersons and optical workers. The high degree of clerical tasks involved in a County Agent's duties has been described in Chapter II. Efficiency in performing these duties cannot help but be one of the more important factors contributing to the effectiveness ratings of Agents as they were obtained for the purposes of this study. Significantly higher Hypochondriasis scores obtained by this lowest "quartile" group would appear to substantiate Verniaud's findings.

The significantly higher mean score of this group on the Dominance scale is perplexing as only limited and inconclusive evidence is available from studies employing this scale. The authors (42) felt that the scale measured (1) poise and self-assurance, (2) resourcefulness and efficiency, (3) reality and task orientation. It may well be that the differences in the populations involved in the standardization study and in this study could produce this apparent contradiction. Further investigation of the scale would appear to be warranted.

Combined comparisons. To aid in pointing out further salient results of Tables 18 and 19, the MMPI scales on which significantly different scores were found are summarized in Table 20 which also includes the mean scores of the four separate "quartile" rating groups.

Table 20 indicates that the mean scores for the total group of agents who were rated in the lowest "quartile" (Q 1) were significantly higher on the Hypochondriasis and Hysteria scales than were the mean scores for the groups of Agents comprising the three higher "quartiles", (Q 4, 3, 2). These differences were also statistically significant when the lowest "quartile" (Q 1) and the highest "quartile" (Q 4) were compared. The lowest work effectiveness "quartile" also scored significantly higher on the Dominance scale when compared with the highest "quartile" (Q 4 versus Q 1) but the difference was not significant when compared with the three highest "quartiles", (Q 4, 3, 2 versus Q 1).

In keeping with Johnson's definition of criteria of statistical significance (64:312) it is evident that the differences shown in Table 20 "may be significant but further observations are necessary." Only the difference on Hypochondriasis (Q 4, 3, 2 versus Q 1) is such that it could have happened by chance errors in two per cent or less of the cases. Therefore, in the further references to these differences in this study it is important that this significance is interpreted in terms of this limitation.

TABLE 20

SUMMARY OF MMPI SCALES ON WHICH MEAN SCORES OF "MORE EFFECTIVE"  
AND "LESS EFFECTIVE" COUNTY AGENTS DIFFERED SIGNIFICANTLY

MMPI Scales	Mean Standard Scores					"t" tests <sup>a</sup>	
	Q 4,3,2 (N 60)	Q 4 (N 21)	Q 3 (N 19)	Q 2 (N 20)	Q 1 (N 21)	Q 4,3,2 versus Q 1	Q 4 versus Q 1
"Less effective" Agents <u>higher</u> than "more effective" Agents.							
Hypochondriasis	52.29	53.00	53.25	50.63	59.24	2.39**	2.23*
Hysteria	53.07	51.71	52.88	54.62	57.43	2.15*	2.08*
Dominance	46.35	42.90	46.90	49.26	49.43	1.12	2.10*

\*\*Significant at the two per cent level or less.

\*Significant at the five per cent level or less.

<sup>a</sup>The "d" test was not used on any comparison in this table.

Intensity of relationships. In order to determine the intensity of relationships between work effectiveness and the two MMPI scales in Table 20 on which significant differences occurred when the total group of "more effective" County Agents was compared with the "less effective" group (Hypochondriasis, Hysteria), biserial correlations were computed. These correlations are reported in Table 21. It will be noted that although these correlations do not appear to be large, each one is significant at the one per cent level of confidence or less, according to Snedecor's (95:125) table for determining the significance of correlation coefficients. Also, they tend to correspond to the "t" test values, since the higher coefficient exists on the Hypochondriasis scale ("t" value 2.39) and the lower coefficient is found on the Hysteria scale ("t" value 2.15).

Prediction from significantly different scales. In view of the position stated previously in this study that Extension administrators consider the majority of the Agents to be satisfactorily effective in their jobs, the concern of the General Research Project is focused more directly upon determining means of preventing the selection of Agents who may prove to be ineffective in their work. In an effort to check on the usefulness of the relationships found in the two scales determined to be significant in distinguishing "effective" from "less effective" Agents, an attempt was made to predict the County Agents who would be rated as "less effective" by means

TABLE 21

CORRELATION COEFFICIENTS BETWEEN TWO MMPI SCALES AND WORK  
EFFECTIVENESS RATINGS FOR 81 COUNTY AGRICULTURAL AGENTS<sup>1</sup>

MMPI Scales	Biserial Correlations
Hypochondriasis	.346**
Hysteria	.316 **
(79 degrees of freedom)	

\*\*Significant at the one per cent level or less.

<sup>1</sup>Three highest "quartiles" (N 60) versus lowest  
"quartile" (N 21).

of these scales. This step represented in effect a hypothetical situation in which an Extension administrator would use these data as one of the criteria for selecting new County Agents. As Super (103) and Thorndike (107) have emphasized, a final test of validity of differences with small numbers of cases must rest upon cross-validation with other similar groups and this is planned as a future step in the General Research Project.

The criteria followed in selecting profile sheets representing Agents predicted to be "less effective" were that the profiles should have scores as high as or higher than the scale scores corresponding to the mean standard scores of the "more effective" Agents on the Hypochondriasis and Hysteria scales. After the profile sheets were thus selected the Agents work effectiveness ratings were checked. The Agents whose scores

were within the criterion scores were designated as the Agents predicted to be "less effective" and those whose scores did not fall within the criterion scores were designated as the Agents predicted to be "more effective". Table 22 shows the comparison of these two groups.

The chi square test of the significance of the comparison in this table indicates that the hypothesis which states that the accuracy of the prediction was not greater than would have occurred by chance factors alone must be rejected. Twenty-one cases fell within the criterion scores established for the Agents predicted to be "less effective". Of these 21 predicted cases, 15 actually had "less effective" and 6 had "more effective" ratings. The total number of rated "less effective" Agents, 21, is approximately one-third of the number of rated "more effective" Agents. If chance factors alone were operating there would then be about a one to three chance that an Agent predicted to be "less effective" would actually be in that category, rather than in the "more effective" group. In terms of the data contained in Table 22, by chance only about five of the 21 cases predicted to be "less effective" should be expected to be in the "less effective" group and about 16 in the "more effective" group. It is apparent therefore that prediction by means of the two MMPI scales was considerably more accurate than would have been attained by chance factors. This step provides preliminary validity for the predictive value of these scales.

TABLE 22

COMPARISON OF COUNTY AGENTS PREDICTED TO BE "LESS EFFECTIVE" WITH THOSE  
PREDICTED TO BE "MORE EFFECTIVE" ON THE BASIS OF SCORES  
ON TWO DIFFERENTIATING MMPI SCALES

Actual Work Effectiveness Rating Groups							Total fre- quency
Group	"Less effective"			"More effective"			
	Fre- quency	per cent	X <sup>2</sup> contri.	Fre- quency	per cent	X <sup>2</sup> contri.	
Predicted to be "less effective"	15	71.4	16.529	6	28.6	5.907	21
Predicted to be "more effective"	6	10.0	5.808	54	90.0	2.078	60
Totals	21			60			81
$X^2 = 31.322^*$							
df = 1							
P = <0.1							

\*Significant at the one per cent level or less.

Analysis of the personality patterns of 4 H Club Agents.

Table 23 includes the comparison of the means and variances on the MMPI scales for the 4 H Club Agents who were rated in the three highest "quartiles" on work effectiveness and those rated in the lowest "quartile."

A study of Table 23 reveals that the lowest rated "quartile" obtained significantly higher scores on the Hysteria scale (58.54 versus 50.91 and the Status scale (51.91 versus 45.34). The three highest rated "quartiles" did not score significantly higher on any scale.

The significant difference in mean standard scores obtained by the lowest rated "quartile" of 4 H Club Agents follows the results obtained in a similar comparison of County Agricultural Agents discussed earlier in this chapter. Although Cook and Wherry's (21) findings relative to elevated scores on Hysteria would appear to remain in agreement, it must be pointed out that there is no significant or even near-significant elevations on the accompanying scales of the "neurotic triad" (Hypochondriasis and Depression) as found by Tyler (111). However, symptoms of immature, unrealistic, naive adjustment to the work situation may well be characteristic of this group. A typical Hysteric, approaches his duties with somewhat unrealistic and immature attitudes that can produce proportionately diminished work effectiveness. Coupled with an extreme drive for social acceptance, which is characteristic of clinical-type Hysteria, this unrealism may



TABLE 23

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $s^2$ ) ON 14 MMPI SCALES FOR 4 H CLUB  
 AGENTS RATED IN THE THREE HIGHEST "QUARTILES" AND THE  
 LOWEST "QUARTILE" ON WORK EFFECTIVENESS

MMPI Scales	Three highest "quartiles" (N 35)		Lowest "quartile" (N 11)		Test of homogeneity	
	$\bar{x}$	$s^2$	$\bar{x}$	$s^2$	F	t or d
Hypochondriasis	51.21	46.84	50.45	113.07	2.41*	.212
Hysteria	50.91	24.60	58.54	79.07	3.21**	2.595*
Depression	49.78	70.57	47.54	309.67	4.39**	.390
Psychopathic Deviate	49.88	47.01	52.18	49.36	1.05	.916
Psychasthenia	53.53	25.83	53.91	174.89	6.73**	.089
Hypomania	53.19	42.23	57.36	118.45	2.80*	.876
Intellectual Efficiency	53.86	32.17	56.73	86.22	2.37*	.929
Social Participation	54.39	56.16	56.91	38.49	1.46	1.076

TABLE 23 (Continued)

	Three highest "quartiles" (N 35)		Lowest "quartile" (N 11)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Prejudice	44.74	48.05	44.00	110.80	2.31*	1.343
Dominance	48.74	28.54	48.82	73.16	2.21*	.028
Responsibility	63.57	64.60	58.91	169.29	2.62*	1.074
Status	45.34	27.21	51.91	54.69	2.01*	2.508**
Achievement	52.28	94.46	54.55	161.07	1.71	.271
Success	54.29	73.23	55.27	123.81	1.69	.257

\*Significant at 5 per cent level or less.

\*\* Significant at 1 per cent level or less.

quite likely most affect the individual in performing the routine functions of his role. With the effective operation of a 4 H Club Agent resting heavily upon efficient clerical routine (periodic reports, communications, etc.,) and with this efficiency being an important factor in the rated effectiveness of the Agent, it may be reasonably anticipated that those individuals with Hysteria-like tendencies would tend to be found most frequently in the lowest "quartile" of rated work effectiveness.

This lowest "quartile" also obtained significantly higher scores on the Status scale. Gough (34) believes that the results of his efforts in development of the MMPI Status scale "tend to substantiate the argument that there are certain personality factors related to sociological categories." Although research on this scale, like that on all social scales, has been limited and inconclusive, it would appear that the self-appraisal of social status is highly related to an individual's reality orientation. In relation to the degree of unreality and immaturity coupled with excessive need for social acceptance, such as was manifested by this lowest "quartile" on the Hysteria scale, strong Status feelings may tend to be present.

An interesting detail in Table 23 is the number of scales showing significant F variances. Variances significant at the one per cent or less level of confidence were found on Hysteria, Depression and Psychasthenia, while Hypochondriasis,

Hypomania, Intellectual Efficiency, Prejudice, Dominance, Responsibility and Status were significant at the five per cent level or less. Thus the null hypothesis that the two groups are in reality random samples drawn from the same normally distributed parent populations is refuted.

As with the County Agents, the scores of the two extreme "quartile" groups of 4 H Club Agents were computed. The results of the comparison of the means and variances of the highest and lowest "quartiles" are shown in Table 24. A study of this table indicates that the mean score for the lowest "quartile" was significantly higher than for the highest "quartile" on the Status scale. No other significant differences in mean scale scores were discovered.

The means for each of the four "quartiles" on the Status scales are as follows, ranging from highest to lowest "quartiles": 41.88, 46.15, 48.00, and 51.91. These means suggest an inverse relationship between ratings of work effectiveness and scores on this scale. In order to determine the intensity of the relationship between work effectiveness and the two scales which significantly differentiate high and low work effectiveness groups, biserial correlations were computed. The results are presented in Table 25.

Prediction from significantly different scales. In an effort to check on the usefulness found in the two scales (Hysteria and Status) found to significantly discriminate between 4 H Club Agents rated "more effective" and those rated "less effective", the chi square technique was applied

TABLE 24

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $\sigma^2$ ) ON 14 MMPI SCALES FOR 4 H CLUB  
AGENTS RATED IN THE HIGHEST "QUARTILE" AND LOWEST  
"QUARTILE" ON WORK EFFECTIVENESS

MMPI Scales	Highest "quartile" (N 13)		Lowest "quartile" (N 11)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Hypochondriasis	53.33	59.00	50.45	113.07	1.92	.67
Hysteria	58.78	13.69	58.54	79.07	5.77*	.08
Depression	52.66	64.25	47.54	309.67	4.82*	.85
Psychopathic Deviate	50.66	78.75	52.18	49.36	1.60	.40
Psychasthenia	52.22	15.44	53.91	174.89	11.32**	.38
Hypomania	52.66	39.75	57.36	118.45	2.98	1.15
Intellectual Efficiency	59.88	23.36	56.73	86.22	3.69*	.93
Social Participation	53.55	64.27	56.91	38.49	1.67	.99

TABLE 24 (Continued)

MMPI Scales	Highest "quartile" (N 13)		Lowest "quartile" (N 11)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Prejudice	39.00	25.25	44.00	110.80	4.98*	1.28
Dominance	49.22	44.19	48.82	73.16	1.66	.11
Responsibility	69.55	105.03	58.91	169.29	1.61	1.93
Status	41.88	77.36	51.91	54.69	1.41	2.57*
Achievement	53.55	74.28	54.55	161.07	2.57	.19
Success	59.11	134.11	55.27	123.81	1.09	.71

\*Significant at 5 per cent level or less.

\*\*Significant at 1 per cent level or less.

TABLE 25

CORRELATION COEFFICIENTS BETWEEN TWO MMPI SCALES AND  
WORK EFFECTIVENESS FOR 46 4 H CLUB AGENTS<sup>1</sup>

MMPI Scales	Biserial Correlations
Hysteria	.441**
Status	.538**
(44 degrees of freedom)	

\*\*Significant at the one per cent level or less.

<sup>1</sup>Three highest "quartiles" (N35) versus lowest  
"quartile" (N 11)

to profiles selected by a similar technique to that employed in prediction analysis of County Agents. Table 26 shows the comparison of these two groups with their actual work effectiveness ratings.

Nine cases fell within the criterion scores established for the Agents predicted to be "less effective". Of these nine predicted cases, six actually had "less effective" and three had "more effective" ratings. The total number of actually "less effective" Agents (11) is approximately one-third of the number of rated "more effective" Agents (35).

If chance factors alone were operating there would then be about a one to three chance that an Agent predicted to be "less effective" would actually be in that category, rather than in the "more effective" group. In terms of the data in

TABLE 26

COMPARISON OF L H CLUB AGENTS PREDICTED TO BE "LESS EFFECTIVE" WITH THOSE  
PREDICTED TO BE "MORE EFFECTIVE" ON THE BASIS OF SCORES  
ON TWO DIFFERENTIATING MMPI SCALES

Actual Work Effectiveness Rating Groups							
Group	"Less effective"			"More effective"			Total fre- quency
	Fre- quency	per cent	X <sup>2</sup> contri.	Fre- quency	per cent	X <sup>2</sup> contri.	
Predicted to be "less effective"	6	66.7	.123	3	33.3	2.616	9
Predicted to be "more effective"	17	45.9	.031	20	54.1	5.363	37
Totals	23			23			46
 X <sup>2</sup> = 8.133*                      df = 1                      P = < .01							

\*Significant at the one per cent level or less.



Table 26, by chance only about three of the nine cases predicted to be "less effective" should be expected to fall in the "less effective" group and about six in the "more effective" group. It is therefore apparent that prediction by means of the two MMPI scales was considerably more accurate than would have been attained by chance factors.

Summary of the relationships between personality patterns and work effectiveness. The results of the analyses of the relationships between MMPI scale scores and County Agents ratings of work effectiveness may be summarized as follows: "In comparison with the 'more effective' Agents, the group of 'less effective' Agents obtained significantly higher scores on Hypochondriasis (significant at the two per cent level or less), and Hysteria ( at the five per cent level or less). The lowest "quartile" also obtained significantly higher scores than the highest "quartile". In a comparison of extreme groups, on Hypochondriasis, Hysteria and Dominance (all at the five per cent level or less).

The two scales on which the mean scores for the total group of "more effective" Agents were significantly different from the "less effective" Agents have correlation coefficients indicating that the intensity of their relationship to work effectiveness is significant at the one per cent level or less. By the use of appropriately high and low cutting scores on these scales it was possible to predict with significant accuracy a group of "less effective" Agents from the criterion

group of County Agricultural Agents. This provided a preliminary test of the predictive validity of these scales.

The relationship between the MMPI scale scores for the 4 H Club Agents and their ratings of work effectiveness may be summarized as follows: The "less effective" group of 4 H Club Agents obtained significantly higher scores than the total group of "more effective" Agents on the Hysteria and Status scales (significant at the five per cent level or less). The "less effective" quartile scored significantly higher (at the five per cent level or less) than the extreme "quartile" of "more effective" Agents on the Status scale. The intensity of the relationship of the Status scale was computed at .538, significant at the one per cent or less level of confidence while that of the Hysteria scale was found to be .441. By the use of appropriate high and low cutting scores on these scales, as in the case of County Agents, it was possible to predict with significant accuracy a group of "less effective" Agents from the criterion group of 4 H Club Agents.

## CHAPTER VII

### THE RELATIONSHIP BETWEEN MMPI SCORES AND JOB SATISFACTION

The purpose of this chapter is to describe the relationship between Agents' MMPI scale scores and scores obtained on the Job Satisfaction Questionnaire resulting from executing the procedures and techniques described in Chapters III and IV.

County Agents. The comparison of the means and variances of the MMPI scores of the "more" and "less" satisfied groups of County Agents is presented in Table 27.

Examination of Table 27 indicates that the "more" satisfied County Agents differed significantly from the "less" satisfied Agents in their scores on the Social Participation scale and on the Responsibility scales. The mean differences on the Social Participation scale (50.14 versus 45.41) and on the Responsibility scale (61.36 versus 57.46) were both in the direction of the "more" satisfied Agents. Both differences were significant at the five per cent or less level of confidence.

The significant difference in the direction of "more" satisfied Agents found on the Social Participation scale is apparently the reflection of feelings of belonging to a group. Gough (37) indicated that five clusters of items were observable in the Social Participation scale. These clusters are (1) items stressing feelings of self-confidence, assurance and poise, (2) items suggesting a tendency toward frankness,

TABLE 27

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $\sigma^2$ ) ON 14 MMPI SCALES FOR  
 "MORE SATISFIED" AND "LESS SATISFIED" COUNTY AGENTS.

MMPI Scales	"More satisfied" (N 44)		"Less satisfied" (N 37)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Hypochondriasis	54.25	107.40	53.51	90.90	1.18	0.33
Hysteria	56.09	46.41	56.11	46.21	1.00	0.01
Depression	53.18	138.80	52.78	122.40	1.13	0.15
Psychopathic Deviate	51.14	68.49	51.38	60.41	1.13	0.13
Psychasthenia	52.82	67.59	53.16	70.97	1.05	0.18
Hypomania	51.73	79.92	51.24	94.42	1.18	0.73
Intellectual Efficiency	52.57	73.51	50.38	42.13	1.74	1.28
Social Participation	50.14	46.26	45.41	86.47	1.87	2.52*

TABLE 27 (Continued)

MMPI Scales	"More satisfied" (N 44)		"Less satisfied" (N 37)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Prejudice	43.20	40.03	46.19	67.99	1.70	1.76
Dominance	48.82	92.48	45.51	106.92	1.16	1.45
Responsibility	61.36	66.24	57.46	79.26	1.20	2.00*
Status	45.68	85.34	43.38	85.58	1.00	1.10
Achievement	52.73	186.32	51.76	97.74	1.91	0.35
Success	55.32	75.57	52.16	84.64	1.12	1.55

\*Significant at the 5 per cent level or less.

openness and unpretentiousness, (3) items specifying a liking for social interaction, (4) items of cultural and intellectual interests, (5) items suggesting an indulgent social outlook and (6) items indicative of a basic satisfaction with life. The County Agent occupies a unique position in the community he serves and it has been indicated in Chapter III that much of his time may be devoted to working with community groups on civic, as well as technical projects. The Agent who feels "more" satisfied with his job could be expected to enjoy social interaction and to possess the sense of trust necessary to developing feelings of "we-ness" or belonging. As a result of tendencies toward social activeness, the "more" satisfied Agents would undoubtedly find those phases of his duties which require group relations to be more pleasant than the Agent who views himself primarily as an agricultural technician.

To the extent that an individual feels "more" satisfied with his role as a County Agent, as increasingly greater sense of responsibility should be expected, thus predicting the higher Responsibility scale scores achieved by the "more" satisfied Agents. Defined (43) as "the willingness to accept the consequences of personal behavior, dependable, trustworthy and showing a sense of obligation to the group" the individual obtaining higher Responsibility scores would tend to manifest greater satisfaction from his chosen field of endeavor.

A noteworthy observation from Table 27 is the greater degree of homogeneity of the means, as indicated by "F" values, than the analysis of "work effectiveness" produced. This would indicate that the job satisfaction dichotomies tend to produce less widely scattered MMPI scale scores than the work effectiveness breakdown employed in this study. A tendency for the scores to cluster more closely about the mean standard score of 50 with fewer individual scores at the extremes of the distribution is apparently the product of more homogenous groupings in terms of those personality variables measured by the MMPI.

Intensity of Relationships. To determine the intensity of the relationship between job satisfaction and the MMPI scales which differentiated the "more satisfied" and "less satisfied" County Agents, biserial correlations were computed for these two variables and the significance of the correlation was determined by reference to Snedecor's (95) table of correlation coefficients. Table 28 includes the results of the comparison of the raw job satisfaction scores and scores on the differentiating MMPI scales. It will be noted that although these correlations do not appear to be large, each one is significant at the one per cent level of confidence or less. Also, they tend to correspond to the "t" values since the higher coefficient is on the Social Participation scale ("t" value 2.52) and the lower is on the Responsibility scale ("t" value 2.00).

TABLE 28

CORRELATION COEFFICIENTS BETWEEN TWO MMPI  
SCALES AND JOB SATISFACTION RATINGS  
FOR 81 COUNTY AGENTS<sup>1</sup>

MMPI Scales	Biserial Correlations
Social Participation	.346**
Responsibility	.284**
(79 Degrees of Freedom)	

\*\*Significant at the one per cent level or less.

<sup>1</sup>"More satisfied" (N 44) versus "less satisfied" (N 37).

Prediction of job satisfaction. An attempt was made to determine the predictive value of the Social Participation and Responsibility scales. The objective of this prediction attempt was to select County Agents who appeared to be "dissatisfied" with their work. It was pointed out in Chapter IV that very little, if any, intense job dissatisfaction was evident among the County Agents from their responses to the Job Satisfaction Questionnaire. However, the Agents whose scaled scores were zero or one (16 per cent of the total) were defined arbitrarily as having low job satisfaction or as being indifferent to their jobs. The Agents in this group were therefore designated as the "dissatisfied" group for prediction purposes. The remaining group of Agents were designated as the "satisfied" group.



The criterion for selection of the profiles predicted to be "dissatisfied" was that the standard score on the Social Participation scale should be 45 or lower, which corresponds to the mean score of the "less satisfied" County Agents on this scale and that the standard score on the Responsibility scale should be 57 or lower, which corresponds to the mean score of the "less satisfied" group on that scale. The comparison of this group and the predicted to be "satisfied" group (those whose scores were above 45 and 57 respectively on these scales) with their actual job satisfaction ratings is presented in Table 29.

The chi square test of the significance of the comparison in Table 29 indicates that the hypothesis that the accuracy of the prediction was not greater than would have occurred by chance factors alone must be rejected. Thirty-two cases fell within the criterion score established for the Agents predicted to be "dissatisfied". Of these thirty-two cases, twelve actually had "dissatisfied" and 20 had "satisfied" job satisfaction ratings. The total number of actually "dissatisfied" Agents (13) is approximately one-fifth of the number of actually "satisfied" Agents (68). If chance factors alone were operating, there would then be about a one to five chance that an Agent predicted to be "dissatisfied" would actually be in that category. In terms of the data in Table 29, by chance only about five of the thirty cases predicted to be

TABLE 29

COMPARISON OF COUNTY AGENTS PREDICTED TO BE "DISSATISFIED" WITH THOSE  
PREDICTED TO BE "SATISFIED" ON THE BASIS OF SCORES  
ON TWO DIFFERENTIATING MMPI SCALES

Group	Actual Job Satisfaction Ratings						total fre- quency
	"Dissatisfied"			"Satisfied"			
	Fre- quency	per cent	X <sup>2</sup> contri.	Fre- quency	per cent	X <sup>2</sup> contri.	
Predicted to be "dissatisfied"	12	37.5	.133	20	62.5	.119	32
Predicted to be "satisfied"	15	30.4	.088	34	69.6	8.644	47
Totals	27			54			81
$\chi^2 = 8.984^*$ df = 1      P = < .01							

\*Significant at the one per cent level or less.

"dissatisfied" should be expected to be in the "dissatisfied" group and about 27 in the "satisfied" group. It is apparent that prediction by means of these two MMPI scales was more accurate than would have been attained by chance factors. This step provides some preliminary validity for the predictive value of this scale.

Comparison of the personality patterns and job satisfaction of 4 H Club Agents. The means and variances of the MMPI scale scores for the "more satisfied" and "less satisfied" groups of 4 H Club Agents are presented in Table 30. The most striking result in Table 30 is the fact that the mean scores for the "more satisfied" Agents are neither significantly higher nor significantly lower than for the "less satisfied" Agents on any scales of the MMPI. None of the "t" values approximate significance at the five per cent or less level of confidence, which requires a "t" value of 2.01 with 45 degrees of freedom. The variances are significantly different on the Depression, Psychasthenia and Prejudice scales.

The question arises as to why no significant differences were found in the personality patterns of 4 H Club Agents subgrouped on the basis of job satisfaction. It is possible that the smaller number of total cases studied makes it more difficult for significant differences to emerge in these comparisons than in the comparisons of the County Agents. However, since the numbers represent the total

TABLE 30

COMPARISON OF MEANS ( $\bar{x}$ ) AND VARIANCES ( $s^2$ ) ON 14 MMPI SCALES FOR  
 "MORE SATISFIED" AND "LESS SATISFIED" 4 H CLUB AGENTS

MMPI Scales	"More satisfied" (N 25)		"Less satisfied" (N 21)		Test of homogeneity	
	$\bar{x}$	$s^2$	$\bar{x}$	$s^2$	F	t or d
Hypochondriasis	49.80	53.92	52.48	95.06	1.76	1.02
Hysteria	57.48	50.76	58.10	54.29	1.07	0.28
Depression	48.20	31.33	50.38	217.25	6.93**	0.63
Psychopathic Deviate	50.56	69.42	50.52	61.36	1.13	0.02
Psychasthenia	52.72	117.63	49.71	33.01	3.56**	1.18
Hypomania	57.00	94.92	55.52	94.76	1.00	0.47
Intellectual Efficiency	56.68	39.84	55.29	64.61	1.62	0.63
Social Participation	55.68	64.23	53.90	42.29	1.52	0.82

TABLE 30 (Continued)

MMPI Scales	"More satisfied" (N 25)		"Less satisfied" (N 21)		Test of homogeneity	
	$\bar{x}$	$\sigma^2$	$\bar{x}$	$\sigma^2$	F	t or d
Prejudice	42.40	91.92	45.38	42.45	2.17*	1.22
Dominance	48.48	40.43	49.43	70.16	1.73	0.42
Responsibility	61.52	81.01	62.14	139.93	1.73	0.19
Status	47.96	45.71	46.19	67.76	1.48	0.77
Achievement	50.56	96.34	55.81	158.66	1.64	1.52
Success	56.08	78.24	52.19	105.76	1.35	1.33

\*Significant at the 5 per cent level or less.

\*\*Significant at the 1 per cent level or less.

group of 4 H Club Agents as defined in Chapter III, it must be concluded that the 4 H Club Agent group studied herein is somewhat more homogeneous in respect to personality patterns than are the County Agents, when job satisfaction ratings are employed.

Summary of the relationship between interests and job satisfaction. The results of the analysis of the relationship between the MMPI scale scores of the County Agents and their self-rated job satisfaction may be summarized as follows: In comparison with the "less satisfied" County Agents, the "more satisfied" Agents had significantly higher mean scores on the Social Participation and Responsibility scales. Each of these relationships was significant at the five per cent or less level of confidence.

Biserial correlations indicated that these MMPI scales on which the "more satisfied" Agents were significantly different from the "less satisfied" Agents had an intensity of relationship to job satisfaction that was significant at the one per cent level or less. By use of appropriate cutting scores on these scales it was possible to predict with significant accuracy a group of "less effective" Agents from the criterion group of Agents. This provided a preliminary test of predictive validity of these scales.

The relationship between the MMPI scale scores of the 4 H Club Agents and their ratings of job satisfaction may be summarized as follows: The total group of "more satisfied"

4 H Club Agents scored neither significantly higher nor significantly lower than the "less satisfied" Agents on any MMPI scales. It was therefore concluded that the "more satisfied" and "less satisfied" 4 H Club Agents could not be satisfactorily differentiated by the MMPI scales.

## CHAPTER VIII

### SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER RESEARCH

The present chapter contains a summary of the investigations which were made in this study, conclusions that were reached as a result of these investigations, and implications for further research.

#### Summary

The Problem. In 1950, the Michigan Cooperative Extension Service initiated a research project for the purpose of studying the differential characteristics of successful and satisfied Extension workers. As a first stage in this over-all research project, the Planning Committee decided to analyze the data available on County Agricultural Agents and County 4 H Club Agents with respect to the relationship between certain of their personal characteristics and various criteria of work adjustment. The personal factors selected for study were: biographical data, vocational interests, academic backgrounds, and personality traits. The criteria of work adjustment selected for study were: rated work effectiveness and measured job satisfaction.

The major purpose for the over-all research project was to obtain information that would help the Michigan Extension Service select County Agents and 4 H Club Agents who will be effective on the job and satisfied with their work.



The problem of this particular study was to analyze the relationships of the personality patterns of the present County Agents and 4 H Club Agents in Michigan to their work effectiveness and job satisfaction as determined above. The Minnesota Multiphasic Personality Inventory, in a form especially adapted for the purposes of this study, was employed to determine personality patterns. This analysis, had for its purpose the description of the Agents' personality patterns and the attempt to determine MMPI scales that might be useful guides of more effective and more satisfied County Agents and 4 H Club Agents.

In reviewing the professional literature, it was discovered that no studies were available which investigated the relationship of personality factors to work adjustment among Extension workers. However, studies of these relationships in other occupations indicated that in some cases more successful workers had been differentiated from less successful workers by means of their inventoried personality traits. Also, in a limited number of studies certain inventoried personality patterns were found to be significantly different when "more satisfied" and "less satisfied" groups were compared.

Methodology. The sample consisted of 81 County Agents and 46 4 H Club Agents. This sample represented all of the 4 H Club Agents and County Agents who were employees of the Michigan Extension Service on September 1, 1950, with the

exception of fifteen who retired, resigned, died, or were transferred to other positions within the organization between that date and the date when the last of the data necessary for the study was obtained.

The method used in evaluating work effectiveness of the County Agents involved a rating by a panel of seven judges, most of whom participate in the annual administrative rating of these workers. This modified, forced-ranking established four fairly equal groups for both County and 4 H Club Agents. The final ranking of the 4 H Club Agents by this panel considered specialists ratings, 4 H Club Allocations ratings and ratings arrived at by calculating the proportion of eligible boys and girls that are enrolled in 4 H Club work in the separate counties. There was no significant variation among the judges as to their recorded opinions of the relative over-all effectiveness with which the Agents were performing their jobs. There was also no significant difference among the various "quartile" rating groups as to age and number of years experience in the Michigan Extension Service. As the Extension Service administrators felt that most Agents were working effectively the top three "quartiles" of each group of Agents were called "more successful" and the bottom "quartile" of each group, "less successful."

Job satisfaction of the Agents was determined by their scores on the Job Satisfaction Questionnaire, an adaptation of the Hoppock Job Satisfaction Blank. Although the rela-

tionship between work effectiveness and job satisfaction was found to be positive, it was not high. Therefore, in order to determine more clearly the relationship between job satisfaction and personality factors, the Agents' scores on the Questionnaire were tested by Guttman's technique for scalability (45). The scores of County Agents were found to be scalable and were separated into two fairly equal groups of "more satisfied" and "less satisfied" Agents on this basis. However, the scores of 4 H Club Agents were not found to be scalable and an arbitrary separation on the basis of raw scores was made. These variable satisfaction groups were found to be homogeneous with respect to age in both groups of Agents, but the "more satisfied" County Agents and 4 H Club Agents were found to have had significantly longer experience on the job than the "less satisfied" Agents.

The primary purpose of the statistical procedures used in this study was to determine the relationship between six clinical and eight social scales of the MMPI and the two independent variables of work effectiveness and job satisfaction. The means and variances were computed for these scales by the work effectiveness and job satisfaction subgroups. Comparisons were made of the MMPI scale score means and variances between the three highest work effectiveness "quartile" groups combined and the lowest "quartile" group and between the highest and lowest "quartile" groups for both

the County Agents and the 4 H Club Agents. In the case of job satisfaction analysis, comparisons were made of the same statistics between the "more satisfied" and "less satisfied" groups of both County Agents and 4 H Club Agents.

The principle statistical techniques used in this study were the "F" ratio and the "t" test to determine the significance of the differences in means and variances of the differential success groups and of the differential satisfaction groups for the MMPI scale variables. Where the "F" test indicated that the variances were significantly different, the Behrens-Fisher "d" test was employed to determine the significance of difference between the means.

Biserial correlations were used for determining the intensity of the relationship between differentiating MMPI scales and the two variables, work effectiveness and job satisfaction. The scales which were found to have significant intensity of relationship were used as the basis for attempts to predict "less effective" and "dissatisfied" groups of Agents from the criterion groups. The accuracy of these prediction attempts was tested by chi square analysis.

Findings. On the basis of the analysis previously reported, the following results were obtained:

(a) The personality patterns of the County Agricultural Agents and 4 H Club Agents in Michigan are somewhat similar as measured by the Minnesota Multiphasic Personality Inventory. In general, the patterns of the two groups on clin-

ical scales resemble those of populations of similar educational status, tending to cluster about the mean. County Agents indicated a trend toward somewhat higher Hypochondriasis and Hysteria scores than other college-trained populations while 4 H Club Agents tended to score somewhat higher on the Hysteria and Psychopathic Deviate scales. Both groups revealed a like tendency to cluster about the means on the social scales of the MMPI, with both County Agents and 4 H Club Agents peaking on the Responsibility scale and 4 H Club Agents deviating also toward higher Intelligence scale scores. The scale scores of the two groups differed most on the Psychopathic Deviate, Hypomania, Social Participation and Intellectual Efficiency scales with all differences in the direction of higher scores in the 4 H Club Agent group. Both County Agents and 4 H Club Agents had consistently lower scores than the control group on the Prejudice scale.

(b) In comparison with the "less effective" (lowest "quartile") County Agents, the total group of "more effective" (three highest "quartiles" combined) County Agents obtained significantly higher scores on Hypochondriasis (significant at the two per cent level or less) and Hysteria (significant at the five per cent level or less). The extreme group of "more effective" County Agents (highest "quartile") scored significantly higher than the "less effective" group on the Hypochondriasis, Hysteria and Dominance scales. All differences were significant at the five per cent level or less.

The two scales on which the mean scores for the total group of "more effective" Agents were significantly different from the "less effective" group have biserial correlation coefficients indicating that the intensity of their relationship to work effectiveness is significant at the one per cent level or less. An attempt to predict a group of "less effective" County Agents by selection of profile answer sheets which had higher scores than the mean scores of the "less effective" Agents on these two differentiating scales was significantly more accurate than chance as revealed by the chi square test of significance of the prediction (significant at the one per cent level or less).

(c) The "less effective" group of 4 H Club Agents obtained significantly higher scores than the total group of "more effective" Agents on the Hysteria and Status scales (significant at the five per cent level or less). This lower "quartile" group scored significantly higher than the extreme "quartile" of "more effective" Agents on the Status scale. The intensity of the relationship of scores of these scales to work effectiveness was determined to be significant at the five per cent level or less. An attempt to predict a group of "less effective" 4 H Club Agents by selection of profile sheets which had scores higher than the mean scores of the "less effective" Agents on these scales was significantly more accurate (at the five per cent level or less) than chance as revealed by the chi square test of significance.

(d) In comparison with the "less satisfied" County Agents, the "more satisfied" Agents had significantly higher mean scores (at the five per cent level or less) on the Social Participation and Responsibility scales. Biserial correlations indicated that these differentiating scales contained significant intensity of relationship to job satisfaction (at the five per cent level or less). An attempt to predict job satisfaction based on these scales was made. Thirteen County Agents whose scaled Job Satisfaction Questionnaire scores were zero or one, were arbitrarily defined as "dissatisfied." An effort to select "dissatisfied" Agents on the basis of scores lower than the mean standard scores of the "less satisfied" Agents on the Social Participation and Responsibility scales was significantly more accurate than chance, as indicated by the chi square test. (Significant at the one per cent level or less).

(e) The total group of "more satisfied" 4 H Club Agents had neither significantly higher nor significantly lower mean scores than the "less satisfied" 4 H Club Agents on any of the MMPI scales employed in the study. A smaller number of "F" ratios were obtained in this comparison, indicating a large degree of homogeneity to be present in the personality patterns of 4 H Club Agents when they are arbitrarily dichotomized into "more satisfied" and "less satisfied" groups.

### Conclusions and Recommendations

On the basis of the summary just presented and related findings in the body of this study, the following conclusions seem warranted:

(a) The description of the Agents' personality patterns, as found herein, provides information that should be useful in characterizing County Agents and 4 H Club Agents as occupational groups.

(b) There is a low but significant relationship between the scores of County Agents and 4 H Club Agents in Michigan on certain MMPI scales and their rated work effectiveness and self-rated job satisfaction. The final test of the validity of the MMPI scales which indicate significant intensity of relationship to work effectiveness and to job satisfaction will be the extent to which future Michigan Agents and Agents in other states, when their selection is based in part on their scores on these scales, actually prove to be more effective and more satisfied in their work. However, the preliminary tests of predictive validity with the criterion groups of present Michigan Agents indicate that certain MMPI scales may be considered as useful guides for improving the selection of County Agents and 4 H Club Agents.

The significance of the preliminary predictive validity found for these MMPI scales should be interpreted in the light of the selected nature of the criterion groups. Since these MMPI scales have preliminary predictive validity with groups



which do not include individuals who left the Extension Service because of unsatisfactory performance on the job, or individuals who desired to become Agents but were not employed as such, it is possible that the scales would prove to have higher differentiating value than the present tests indicate, if they were used with more heterogeneous groups.

(c) The relationship between work effectiveness and job satisfaction was found to be positive but not high among these Agent groups. As it was necessary to regroup these Agents in order to determine more clearly the relationships between their personality patterns and their job satisfaction, the contributions of this study are limited accordingly.

(d) With the above limitations in mind, the preliminary tests of predictive validity support the following specific uses of the scales: (i) Standard or T scores of 59 or higher on the Hypochondriasis scale and 57 or higher on the Hysteria scale may be used as indicators of "less effective" County Agents. T scores of 50 or lower on the Social Participation scale and 61 or lower on the Responsibility scale may be used as indicators of County Agents who will have low job satisfaction. (ii) T scores of 58 or higher on the Hysteria scale and 52 or higher on the Status scale may be used as indicators of "less effective" 4 H Club Agents. No scales were found which satisfactorily differentiate "satisfied" from "dissatisfied" 4 H Club Agents.

(e) Although the personality patterns of the total group of County Agents and the total group of 4 H Club Agents are, in general, similar, the MMPI scales which significantly differentiated the variable work effectiveness and job satisfaction groups of County Agents were not the same scales which differentiated these groups of 4 H Club Agents. Therefore, evidence is lacking in this study to support the contention that the use of scale scores recommended in (d) above for the selection of County Agents would improve the selection of 4 H Club Agents, or vice versa. Since the majority of County Extension workers in Michigan are first hired as 4 H Club Agents this is especially pertinent. As no MMPI scales were found to be sufficiently related to job satisfaction in the 4 H Club Agent population, the data in this study provide for the improvement of the selection of 4 H Club Agents only in terms of 4 H Club Agents who will be more effective in their work.

#### Suggestions for Further Research

In the interests of the General Research Project, the following additional research would appear to be necessary to fulfill the established goals of the Planning Committee:

(a) Cross-validation studies are needed in order to determine the predictive validity of these findings when applied to a new group of Agents. These studies should be based on future Agents in other states as well as in Michigan. It

is also suggested that MMPI scores be obtained from individuals who apply for County Agent and 4 H Club Agent positions but are not accepted.

(b) Further studies should be made of differences between the County Agent and 4 H Club Agent groups. Some differences were found between the personality patterns which differentiate variable work effectiveness and job satisfaction groups of County Agents and the personality patterns which differentiate these groups of 4 H Club Agents. Since the Michigan Extension Service selects most of its County Agents from the ranks of the 4 H Club Agents, such studies should aid in determining whether or not a single criterion group of MMPI scale scores may be valid for improving the selection of personnel for both groups.

(c) The findings of this study indicate that "more satisfied" Agents had significantly longer experience in the Michigan Extension Service than did the "less satisfied" Agents. Although these results are generally in lines with job satisfaction studies in other occupations, follow-up studies of the present group of "less satisfied" Agents should be carried on. This would necessitate periodical appraisals of job satisfaction in addition to the present periodical evaluations of work effectiveness.

(d) The present investigation was limited to the extent that it excluded many successful men who had been promoted within the Extension Service or had accepted better jobs

outside the Service, a number of unsuccessful men who had been asked to resign, and a number of dissatisfied men who had resigned voluntarily. A long-term study of all employees of the Extension Service, both those presently employed and those who become employees in the future, should be initiated in order that a complete set of data be obtained for every member of the organization.

(e) It is suggested that, in view of the results obtained through use of the Job Satisfaction Questionnaire in this study, a validity study of that instrument be made in terms of various commitments of the Agents' role.

(f) In view of the fact that an adapted form of the Minnesota Multiphasic Personality Inventory was employed in this study, it is suggested that the full form be utilized in future investigations with this population. As the findings of this study have revealed that certain scales of the adapted form are useful in differentiating the variable groups studied, it is possible that other useful scales might be found among those omitted from the adapted form.

(g) When sufficient numbers of cases are available, item analyses of the MMPI should be made for the purpose of determining whether or not a new MMPI scale or scales could be constructed which would adequately differentiate the personality patterns of County Agents and/or 4 H Club Agents as a distinct occupational group or groups.

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## APPENDIX A

## EXTENSION SERVICE RESEARCH PROJECT

SURVEY OF OCCUPATIONAL ATTITUDES

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Sponsored by

The Michigan Cooperative Extension Service

WHAT THIS IS: People have varying opinions about their occupations and the work that they do from day to day. Your reactions to the attached questions will be used to help us establish standards for selecting future agents.

## WHAT WE WANT YOU TO DO:

1. Enter your name, title, and address on the bottom of the page. This portion of the questionnaire will be removed and replaced by a code number.
2. There are no right or wrong answers.
3. Indicate some answer to every question. It is important that you do not skip any of the questions.

Name \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_



Few people can excell in performing all of the different roles or tasks required of county extension agents. Listed below are 11 of the most common kinds of things agents are called on to do. They each require somewhat different abilities and training to perform satisfactorily. From your experience, which of these tasks would you say it was most important for a new agent to show promise of doing particularly well, recognizing they are all important. Rate each role in comparison to the others listed.

Circle E if you feel it is extremely important that an agent be able to perform the role exceptionally well.

Circle V if you feel it is very important that an agent perform this role well.

Circle I if you feel this role is important for an agent to perform satisfactorily.

Circle N if you feel it is not important for an agent to be able to perform this role satisfactorily.

E V I N Performing office details, keeping records, writing reports, filing, etc.

E V I N Acting as radio broadcaster.

E V I N Acting as administrator, organizing and seeing that things are done, writing reports, etc.

E V I N Acting as demonstrator or public speaker, giving information, talks, lessons, etc. before groups.

E V I N Acting as a public relations man, maintaining good public relations, keeping up contacts, building useful friendships and good will, etc.

E V I N Acting as an organizer or arranger of activities or events.

E V I N Acting as a consultant, giving people information and advice as requested.

E V I N Acting as a facilitator, or expediter, making it easy or possible for people to follow extension recommendations or programs.

E V I N Acting as student, keeping up to date on new developments, etc.

E V I N Acting as newspaper reporter or columnist.

E V I N Acting as a promoter, stimulating people to action in face to face contact.

This set of questions is widely used to determine how satisfied people are in different kinds of work. We are asking you to fill it out to see if there is a relationship between extension agents' vocational interests and job satisfaction. In addition, we need to know the job satisfaction of county extension workers so that we can use it as a standard against which to compare prospective extension workers. This is not a measure of a person's performance on the job or of his intent to change jobs. It is merely an indication of the satisfaction which the total job provides.

Each question, it should be noted, is made up of two parts. The first part ask how you feel about some element of your work. The second part is an attempt to determine how intensely you feel about it. Be sure to answer both parts of each question.

1. How well do you like your work? (check one)

☐ I dislike it a great deal  
☐ I don't like it  
☐ I'm indifferent to it  
☐ I like it fairly well  
☐ I like it very much  
☐ I like it better than almost anything else.

How strongly do you feel about this? (check one)

☐ Not at all strongly  
☐ Quite strongly  
☐ Very strongly

2. How much of the time do you feel satisfied with your occupation? (check one)

☐ All of the time  
☐ Almost all of the time  
☐ Most of the time  
☐ A good deal of the time  
☐ Some of the time  
☐ Very little of the time

How certain are you about this? (check one)

☐ Very certain  
☐ Fairly certain  
☐ Not at all certain.

3. How do you feel about changing your occupation? (check one)

☐ Would like very much to get into a completely different occupation.  
☐ Would like to change to some related occupation  
☐ Am not eager to change but would consider changing to a related occupation  
☐ Might consider changing to a closely related occupation.  
☐ Would not consider changing  
☐ Undecided.

How sure are you about this? (check one)

☐ Not at all sure  
☐ Fairly sure  
☐ Very sure

4. How well satisfied are you with your occupation? (Check one)
- ☐ Much more satisfied than other people
  - ☐ More satisfied than the average person
  - ☐ As well satisfied as most people
  - ☐ Less satisfied than the average person
  - ☐ Much less satisfied than other people

How strongly do you hold this opinion? (check one)

- ☐ Very strongly
- ☐ Quite strongly
- ☐ Not at all strongly

5. How enthusiastic are you about your occupation? (check one)
- ☐ Not at all enthusiastic
  - ☐ Only mildly enthusiastic
  - ☐ Quite enthusiastic
  - ☐ Very enthusiastic

How strongly do you feel about this? (check one)

- ☐ Not at all strongly
- ☐ Quite strongly
- ☐ Very strongly

6. How important do you think your work is as compared to that of other professional people? (check one)
- ☐ Very important
  - ☐ Quite important
  - ☐ Slightly important
  - ☐ Not important at all
  - ☐ Undecided

How sure are you about this?

- ☐ Very sure
- ☐ Fairly sure
- ☐ Not at all sure

7. How interested are you in your work? (check one)
- ☐ Not interested at all
  - ☐ Only slightly interested
  - ☐ Quite interested
  - ☐ Very interested

How much does being interested in your work mean to you personally? (check one)

- ☐ Means very little
- ☐ Means quite a lot
- ☐ Means a great deal

## PART III.

In the job analysis study we are conducting to find ways extension agents use their time it would be unrealistic to omit from careful consideration likes and dislikes. In every job there are things we get a lot of personal pleasure and satisfaction from doing. Other things we do because they need to be done. Your answers will help us to find out what Michigan agents like to do most and what they do because it is expected of them by the job.

Draw a circle around the key letter which best describes your feelings: V if you enjoy very much; S if you get some enjoyment from it; D if you don't enjoy doing it. Example: if you do not like playing the part of a public relations man, circle D.

- |   |       |
|---|-------|
| 1. Acting as a <u>consultant</u>                            | V S D |
| 2. Acting as a <u>promoter</u>                              | V S D |
| 3. Acting as an <u>organizer</u>                            | V S D |
| 4. Acting as <u>newspaper reporter</u>                      | V S D |
| 5. Acting as <u>radio broadcaster</u>                       | V S D |
| 6. Acting as <u>administrator</u>                           | V S D |
| 7. Acting as a <u>demonstrator</u> or <u>public speaker</u> | V S D |
| 8. Acting as a <u>facilitator</u> or <u>expediter</u>       | V S D |
| 9. Performing <u>office details</u>                         | V S D |
| 10. Acting as <u>student</u>                                | V S D |
| 11. Acting as a <u>public relations man</u>                 | V S D |

## APPENDIX B

# PERSONALITY INVENTORY

## MICHIGAN STATE COLLEGE

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### PLEASE READ CAREFULLY

This inventory consists of numbered statements. Read each statement and decide whether it is true as applied to you or false as applied to you.

You are to encircle ONE of the letters to the LEFT of each question. Look at the example shown below. If a statement is TRUE or MOSTLY TRUE, as applied to you, encircle the letter "T".

(T) F 1. I like mechanics magazines.

If a statement is FALSE or NOT USUALLY TRUE, as applied to you, encircle the letter "F".

T (F) 2. I would like to be a good singer.

If a statement does not apply to you or if it is something that you don't know about, make NO mark in the answer column.

Remember to give YOUR OWN opinion of yourself. Do not leave any blank spaces if you can avoid it.

NOW OPEN THE BOOKLET AND GO AHEAD.

- T F 1. I have a good appetite.
- T F 2. I wake up fresh and rested most mornings.
- T F 3. I am easily awakened by noise.
- T F 4. I like to read newspaper articles on crime.
- T F 5. My hands and feet are usually warm enough.
- T F 6. My daily life is full of things that keep me interested.
- T F 7. I am about as able to work as I ever was.
- T F 8. There seems to be a lump in my throat much of the time.
- T F 9. A person should try to understand his dreams and be guided by or take warning from them.
- T F 10. I enjoy detective or mystery stories.
- T F 11. I work under a great deal of tension.
- T F 12. Once in a while I think of things too bad to talk about.
- T F 13. I am sure I get a raw deal from life.
- T F 14. I am very seldom troubled by constipation.
- T F 15. My sex life is satisfactory.
- T F 16. At times I have very much wanted to leave home.
- T F 17. At times I have fits of laughing and crying that I cannot control.
- T F 18. I am troubled by attacks of nausea and vomiting.
- T F 19. No one seems to understand me.
- T F 20. I feel that it is certainly best to keep my mouth shut when I'm in trouble.
- T F 21. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing.
- T F 22. I am bothered by acid stomach several times a week.
- T F 23. At times I feel like swearing.
- T F 24. I find it hard to keep my mind on a task or job.
- T F 25. I have had very peculiar and strange experiences.
- T F 26. If people had not had it in for me I would have been much more successful.
- T F 27. I seldom worry about my health.
- T F 28. I have never been in trouble because of my sex behavior.
- T F 29. During one period when I was a youngster I engaged in petty thievery.
- T F 30. At times I feel like smashing things.
- T F 31. I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going."
- T F 32. My family does not like the work I have chosen (or the work I intend to choose for my life work).
- T F 33. My sleep is fitful and disturbed.
- T F 34. Much of the time my head seems to hurt all over.
- T F 35. My judgment is better than it ever was.
- T F 36. Once a week or oftener I feel suddenly hot all over, without apparent cause.
- T F 37. I am in just as good physical health as most of my friends.
- T F 38. I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.
- T F 39. I am almost never bothered by pains over the heart or in my chest.
- T F 40. As a youngster I was suspended from school one or more times for cutting up.
- T F 41. I am a good mixer.
- T F 42. Everything is turning out just like the prophets of the Bible said it would.
- T F 43. I have often had to take orders from someone who did not know as much as I did.
- T F 44. I do not read every editorial in the newspaper every day.
- T F 45. I have not lived the right kind of life.
- T F 46. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."
- T F 47. I have had no difficulty in starting or holding my bowel movement.
- T F 48. I sometimes keep on at a thing until others lose their patience with me.
- T F 49. I see things or animals or people around me that others do not see.
- T F 50. I wish I could be as happy as others seem to be.
- T F 51. I hardly ever feel pain in the back of the neck.
- T F 52. I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.
- T F 53. I am troubled by discomfort in the pit of my stomach every few days or oftener.
- T F 54. I am an important person.
- T F 55. Most of the time I feel blue.
- T F 56. I like poetry.
- T F 57. I sometimes tease animals.
- T F 58. I think I would like the kind of work a forest ranger does.
- T F 59. I am easily downed in an argument.
- T F 60. These days I find it hard not to give up hope of amounting to something.
- T F 61. I am certainly lacking in self-confidence.
- T F 62. I usually feel that life is worth while.
- T F 63. It takes a lot of argument to convince most people of the truth.

- T F 64. I do not mind being made fun of.
- T F 65. I think most people would lie to get ahead.
- T F 66. I do many things which I regret afterwards (I regret things more or more often than others seem to).
- T F 67. I go to church almost every week.
- T F 68. I have very few quarrels with members of my family.
- T F 69. At times I have a strong urge to do something harmful or shocking.
- T F 70. I believe in the second coming of Christ.
- T F 71. I have met problems so full of possibilities that I have been unable to make up my mind about them.
- T F 72. I believe women ought to have as much sexual freedom as men.
- T F 73. My hardest battles are with myself.
- T F 74. I have little or no trouble with my muscles twitching or jumping.
- T F 75. I don't seem to care what happens to me.
- T F 76. Sometimes when I am not feeling well I am cross.
- T F 77. Much of the time I feel as if I have done something wrong or evil.
- T F 78. I am happy most of the time.
- T F 79. There seems to be a fullness in my head or nose most of the time.
- T F 80. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
- T F 81. Someone has it in for me.
- T F 82. I have never done anything dangerous for the thrill of it.
- T F 83. Often I feel as if there were a tight band about my head.
- T F 84. I enjoy a race or game better when I bet on it.
- T F 85. Most people are honest chiefly through fear of being caught.
- T F 86. In school I was sometimes sent to the principal for cutting up.
- T F 87. My speech is the same as always (not faster or slower, or slurring; no hoarseness).
- T F 88. My table manners are not quite as good at home as when I am out in company.
- T F 89. I seem to be about as capable and smart as most others around me.
- T F 90. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.
- T F 91. I have a great deal of stomach trouble.
- T F 92. I like dramatics.
- T F 93. I know who is responsible for most of my troubles.
- T F 94. The sight of blood neither frightens me nor makes me sick.
- T F 95. Often I can't understand why I have been so cross and grouchy.
- T F 96. I have never vomited blood or coughed up blood.
- T F 97. I do not worry about catching diseases.
- T F 98. At times my thoughts have raced ahead faster than I could speak them.
- T F 99. I commonly wonder what hidden reason another person may have for doing something nice for me.
- T F 100. I believe that my home life is as pleasant as that of most people I know.
- T F 101. Criticism or scolding hurts me terribly.
- T F 102. Sometimes I feel as if I must injure either myself or someone else.
- T F 103. My conduct is largely controlled by the customs of those about me.
- T F 104. I certainly feel useless at times.
- T F 105. When I was a child, I belonged to a crowd or gang that tried to stick together through thick and thin.
- T F 106. At times I feel like picking a fist fight with someone.
- T F 107. I have the wanderlust and am never happy unless I am roaming or traveling about.
- T F 108. I have often lost out on things because I couldn't make up my mind soon enough.
- T F 109. It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.
- T F 110. I used to keep a diary.
- T F 111. Most nights I go to sleep without thoughts or ideas bothering me.
- T F 112. During the past few years I have been well most of the time.
- T F 113. I have never had a fit or convulsion.
- T F 114. I am neither gaining nor losing weight.
- T F 115. I have had periods in which I carried on activities without knowing later what I had been doing.
- T F 116. I feel that I have often been punished without cause.
- T F 117. I cry easily.
- T F 118. I cannot understand what I read as well as I used to.
- T F 119. I have never felt better in my life than I do now.
- T F 120. The top of my head sometimes feels tender.
- T F 121. I resent having anyone take me in so cleverly that I have had to admit that it was one on me.
- T F 122. I do not tire quickly.
- T F 123. I like to study and read about things that I am working at.
- T F 124. I am afraid when I look down from a high place.



- T F 125. It wouldn't make me nervous if any members of my family got into trouble with the law.
- T F 126. What others think of me does not bother me.
- T F 127. It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things.
- T F 128. I frequently have to fight against showing that I am bashful.
- T F 129. I liked school.
- T F 130. I have never had a fainting spell.
- T F 131. I seldom or never have dizzy spells.
- T F 132. I do not have a great fear of snakes.
- T F 133. My memory seems to be all right.
- T F 134. I am worried about sex matters.
- T F 135. I find it hard to make talk when I meet new people.
- T F 136. When I get bored I like to stir up some excitement.
- T F 137. I am afraid of losing my mind.
- T F 138. I am against giving money to beggars.
- T F 139. I frequently notice my hand shakes when I try to do something.
- T F 140. I can read a long while without tiring my eyes.
- T F 141. I feel weak all over much of the time.
- T F 142. I have very few headaches.
- T F 143. Sometimes, when embarrassed, I break out in a sweat which annoys me greatly.
- T F 144. I have had no difficulty in keeping my balance in walking.
- T F 145. I do not have spells of hay fever or asthma.
- T F 146. I have had attacks in which I could not control my movements or speech but in which I knew what was going on around me.
- T F 147. I daydream very little.
- T F 148. Children should be taught all the main facts of sex.
- T F 149. I wish I were not so shy.
- T F 150. I would like to be a journalist.
- T F 151. At times it has been impossible for me to keep from stealing or shoplifting something.
- T F 152. I enjoy many different kinds of play and recreation.
- T F 153. I like to flirt.
- T F 154. My people treat me more like a child than a grown-up.
- T F 155. In walking I am very careful to step over sidewalk cracks.
- T F 156. I have used alcohol excessively.
- T F 157. There is very little love and companionship in my family as compared to other homes.
- T F 158. I frequently find myself worrying about something.
- T F 159. I like science.
- T F 160. It is not hard for me to ask help from my friends even though I cannot return the favor.
- T F 161. I very much like hunting.
- T F 162. My parents have often objected to the kind of people I went around with.
- T F 163. I gossip a little at times.
- T F 164. Some of my family have habits that bother and annoy me very much.
- T F 165. At times I feel that I can make up my mind with unusually great ease.
- T F 166. I should like to belong to several clubs or lodges.
- T F 167. I hardly ever notice my heart pounding and I am seldom short of breath.
- T F 168. I like to talk about sex.
- T F 169. I have been inspired to a program of life based on duty which I have since carefully followed.
- T F 170. I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing.
- T F 171. I get mad easily and then get over it soon.
- T F 172. I have been quite independent and free from family rule.
- T F 173. I brood a great deal.
- T F 174. My relatives are nearly all in sympathy with me.
- T F 175. I have periods of such great restlessness that I cannot sit long in a chair.
- T F 176. I have been disappointed in love.
- T F 177. I never worry about my looks.
- T F 178. I dream frequently about things that are best kept to myself.
- T F 179. I believe I am no more nervous than most others.
- T F 180. I have few or no pains.
- T F 181. My way of doing things is apt to be misunderstood by others.
- T F 182. My parents and family find more fault with me than they should.
- T F 183. Sometimes without any reason or even when things are going wrong I feel excitedly happy, "on top of the world."
- T F 184. I believe there is a Devil and a Hell in afterlife.
- T F 185. I don't blame anyone for trying to grab everything he can get in this world.

- T F 186. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.
- T F 187. I can be friendly with people who do things which I consider wrong.
- T F 188. Sometimes at elections I vote for men about whom I know very little.
- T F 189. The only interesting part of newspapers is the "funnies."
- T F 190. I believe there is a God.
- T F 191. I have difficulty in starting to do things.
- T F 192. I was a slow learner in school.
- T F 193. I sweat very easily even on cool days.
- T F 194. It is safer to trust nobody.
- T F 195. Once a week or oftener I become very excited.
- T F 196. When in a group of people I have trouble thinking of the right things to talk about.
- T F 197. Something exciting will almost always pull me out of it when I am feeling low.
- T F 198. When I leave home I do not worry about whether the door is locked and the windows closed.
- T F 199. I do not blame a person for taking advantage of someone who lays himself open to it.
- T F 200. At times I am all full of energy.
- T F 201. I have numbness in one or more regions of my skin.
- T F 202. My eyesight is as good as it has been for years.
- T F 203. At times I have been so entertained by the cleverness of a crook that I have hoped he would get by with it.
- T F 204. I drink an unusually large amount of water every day.
- T F 205. Most people make friends because friends are likely to be useful to them.
- T F 206. I do not often notice my ears ringing or buzzing.
- T F 207. I am sure I am being talked about.
- T F 208. Once in a while I laugh at a dirty joke.
- T F 209. I have very few fears compared to my friends.
- T F 210. I am troubled by attacks of nausea and vomiting.
- T F 211. I am always disgusted with the law when a criminal is freed through the arguments of a smart lawyer.
- T F 212. I work under a great deal of tension.
- T F 213. I am likely not to speak to people until they speak to me.
- T F 214. I have never been in trouble with the law.
- T F 215. I have periods in which I feel unusually cheerful without any special reason.
- T F 216. I wish I were not bothered by thoughts about sex.
- T F 217. If several people find themselves in trouble, the best thing for them to do is to agree upon a story and stick to it.
- T F 218. I think that I feel more intensely than most people do.
- T F 219. There never was a time in my life when I liked to play with dolls.
- T F 220. Life is a strain for me much of the time.
- T F 221. In school I found it very hard to talk before the class.
- T F 222. I refuse to play some games because I am not good at them.
- T F 223. The man who provides temptation by leaving valuable property unprotected is about as much to blame for its theft as the one who steals it.
- T F 224. Once in a while I think of things too bad to talk about.
- T F 225. I think nearly anyone would tell a lie to keep out of trouble.
- T F 226. I am more sensitive than most other people.
- T F 227. Most people inwardly dislike putting themselves out to help other people.
- T F 228. I am easily embarrassed.
- T F 229. I worry over money and business.
- T F 230. I have had very peculiar and strange experiences.
- T F 231. I have never been in love with anyone.
- T F 232. I find it hard to keep my mind on a task or job.
- T F 233. I almost never dream.
- T F 234. Peculiar odors come to me at times.
- T F 235. I easily become impatient with people.
- T F 236. I feel anxiety about something or someone almost all the time.
- T F 237. I have certainly had more than my share of things to worry about.
- T F 238. Sometimes I become so excited that I find it hard to get to sleep.
- T F 239. I forget right away what people say to me.
- T F 240. I usually have to stop and think before I act even in trifling matters.
- T F 241. Often I cross the street in order not to meet someone I see.
- T F 242. I have a habit of counting things that are not important such as bulbs on electric signs, and so forth.
- T F 243. I tend to be on my guard with people who are somewhat more friendly than I had expected.
- T F 244. I have strange and peculiar thoughts.
- T F 245. I get anxious and upset when I have to make a short trip away from home.
- T F 246. I have been afraid of things or people that I knew could not hurt me.
- T F 247. I have no dread of going into a room by myself where other people have already gathered and are talking.

- T F 248. I am afraid of using a knife or anything very sharp or pointed.
- T F 249. Sometimes I enjoy hurting persons I love.
- T F 250. I have more trouble concentrating than others seem to have.
- T F 251. I have several times given up doing a thing because I thought too little of my ability.
- T F 252. Bad words, often terrible words come into my mind and I cannot get rid of them.
- T F 253. Sometimes some unimportant thought will run through my mind and bother me for days.
- T F 254. Almost every day something happens to frighten me.
- T F 255. I am inclined to take things hard.
- T F 256. I am more sensitive than most other people.
- T F 257. I feel uneasy indoors.
- T F 258. Even when I am with people I feel lonely much of the time.
- T F 259. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards.
- T F 260. I tend to be interested in several different hobbies rather than to stick to one of them for a long time.
- T F 261. I feel sure that there is only one true religion.
- T F 262. At periods my mind seems to work more slowly than usual.
- T F 263. I do not like to see women smoke.
- T F 264. I am often said to be hotheaded.
- T F 265. People often disappoint me.
- T F 266. I like to keep people guessing what I'm going to do next.
- T F 267. I am afraid to be alone in the dark.
- T F 268. My plans have frequently seemed so full of difficulties that I have had to give them up.
- T F 269. I love to go to dances.
- T F 270. A windstorm terrifies me.
- T F 271. The future is too uncertain for a person to make serious plans.
- T F 272. I have sometimes felt that difficulties were piling up so high that I could not overcome them.
- T F 273. I often think, "I wish I were a child again."
- T F 274. I have no fear of water.
- T F 275. It is great to be living in these times when so much is going on.
- T F 276. I have often met people who were supposed to be experts who were no better than I.
- T F 277. I am apt to hide my feelings in some things, to the point that people may hurt me without their knowing about it.
- T F 278. At times I have worn myself out by undertaking too much.
- T F 279. I would certainly enjoy beating a crook at his own game.
- T F 280. It makes me feel like a failure when I hear of the success of someone I know well.
- T F 281. I do not dread seeing a doctor about a sickness or injury.
- T F 282. If given the chance I would make a good leader of people.
- T F 283. At times I think I am no good at all.
- T F 284. I played hooky from school quite often as a youngster.
- T F 285. I am embarrassed by dirty stories.
- T F 286. I am attracted by members of the opposite sex.
- T F 287. I worry quite a bit over possible misfortunes.
- T F 288. I have strong political opinions.
- T F 289. I would like to be an auto racer.
- T F 290. Usually I would prefer to work with women.
- T F 291. People generally demand more respect for their own rights than they are willing to allow for others.
- T F 292. It is all right to get around the law if you don't actually break it.
- T F 293. I like tall women.
- T F 294. I have had periods in which I lost sleep over worry.
- T F 295. I am bothered by people outside, on streetcars, in stores, etc., watching me.
- T F 296. I enjoy social gatherings just to be with people.
- T F 297. I like to poke fun at people.
- T F 298. I am quite often not in on the gossip and talk of the group I belong to.
- T F 299. I believe that a person should never taste an alcoholic drink.
- T F 300. I have used alcohol moderately (or not at all).
- T F 301. I find it hard to set aside a task that I have undertaken, even for a short time.
- T F 302. I have had no difficulty starting or holding my urine.
- T F 303. I have never seen a vision.
- T F 304. I am often sorry because I am so cross and grouchy.
- T F 305. I have often found people jealous of my good ideas, just because they had not thought of them first.
- T F 306. In school my marks in deportment were quite regularly bad.
- T F 307. I am fascinated by fire.
- T F 308. I am often afraid of the dark.
- T F 309. Christ performed miracles such as changing water into wine.
- T F 310. When a man is with a woman he is usually thinking about things related to her sex.

- T F 311. I feel like giving up quickly when things go wrong.
- T F 312. I pray several times every week.
- T F 313. I have no patience with people who believe there is only one true religion.
- T F 314. I dread the thought of an earthquake.
- T F 315. I have never seen things doubled (that is, an object never looks like two objects to me without my being able to make it look like one object).
- T F 316. It is always a good thing to be frank.
- T F 317. I usually work things out for myself rather than get someone to show me how.
- T F 318. I like to let people know where I stand on things.
- T F 319. I do not try to cover up my poor opinion or pity of a person so that he won't know how I feel.
- T F 320. I have a daydream life about which I do not tell other people.
- T F 321. I think Lincoln was greater than Washington.
- T F 322. I have often felt guilty because I have pretended to feel more sorry about something than I really was.
- T F 323. In a group of people I would not be embarrassed to be called upon to start a discussion or give an opinion about something I know well.
- T F 324. I practically never blush.
- T F 325. I am not afraid of picking up a disease or germs from door knobs.
- T F 326. The future seems hopeless to me.
- T F 327. I would like to wear expensive clothes.
- T F 328. People can pretty easily change me even though I thought that my mind was already made up on a subject.
- T F 329. My skin seems to be unusually sensitive to touch.
- T F 330. Several times a week I feel as if something dreadful is about to happen.
- T F 331. I like to read about history.
- T F 332. I like parties and socials.
- T F 333. I like to read about science.
- T F 334. I am afraid of being alone in a wide-open place.
- T F 335. I sometimes feel that I am about to go to pieces.
- T F 336. I am very careful about my manner of dress.
- T F 337. A large number of people are guilty of bad sexual conduct.
- T F 338. I have often been frightened in the middle of the night.
- T F 339. I very much like horseback riding.
- T F 340. The one to whom I was most attached and whom I most admired as a child was a woman. (Mother, sister, aunt, or other woman.)
- T F 341. I am apt to pass up something I want to do when others feel that it isn't worth doing.

## APPENDIX C



## APPENDIX D

COOPERATIVE EXTENSION WORK  
In Agriculture and Home Economics  
State of Michigan

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Michigan State College  
U. S. Department of Agriculture

May 2, 1951

Dear Sir:

You will recall that we are in the process of a research project that is designed primarily to improve our selection and training of new Agents. The Strong Vocational Interest Blank which you filled out last fall was the first main step in this project. As a second step, we would like to know more about the Agents attitudes toward their job. The enclosed Survey of Occupational Attitudes has been prepared for this purpose.

I would appreciate it if you would answer this questionnaire and return it to me as soon as possible. The instructions are given on the first page. We simply want your frank answers and nothing you put down will have any bearing on your present or future status in the Extension Service. You will notice that after you return the blank to me your name will be removed and a code number will be replaced so that you will be anonymous to the research workers.

The project is moving along and by the cooperation of each Agent we should soon have some worthwhile information for improving the effectiveness of our organization.

Sincerely yours,

John T. Stone  
Specialist in Extension Training

Enclosure

JTS:ba