RELATIONSHIP BETWEEN SOME PRE-TEACHING CHARACTERISTICS AND SUBSEQUENT PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Thesis for the Degree of Ed. D.

MICHIGAN STATE COLLEGE

George Willard Sledge

1954

This is to certify that the

thesis entitled

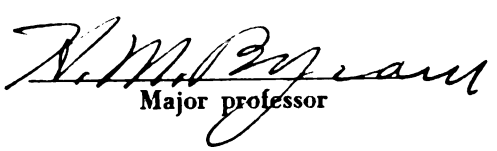
RELATIONSHIP BETWEEN SOME PRE-TEACHING CHARACTERISTICS AND SUBSEQUENT PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

presented by

George Willard Sledge

has been accepted towards fulfillment of the requirements for

Ed.D. degree in Education



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by

GEORGE WILLARD SIEDGE

A THESIS

Submitted to the School of Graduate Studies of Michigan State College of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

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ACKNOWLEDGMENTS

The author wishes to express his grateful appreciation for the valuable assistance and guidance rendered by the many persons cooperating in this study. He is particularly indebted to Dr. Harold M. Byram, whose guidance and generous help directed the entire work to its completions. He is indebted to Dr. H. Paul Sweany, Dr. H. W. Sundwall, Dr. C. R. Megee and Dr. C. V. Millard for their counsel and advice throughout the study. To Dr. W. D. Baten, the author is indebted for helpful assistance in directing the statistical analyses of data. To the teacher educators, state supervisors and school administrators, the author is deeply indebted for their generous assistance in supplying data for the study.

The author is grateful to his wife, Dorothy D. Sledge, for constant assistance in preparing the study and lending encouragement and understanding throughout the study.

RELATIONSHIP BETWEEN SOME PRE-TEACHING CHARACTERISTICS AND SUBSEQUENT PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

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AN ABSTRACT

Submitted to the School of Graduate Studies of Michigan State College of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

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Sledge, George Willard, "Relationship Between Some Pre-Teaching Characteristics and Subsequent Performance of Teachers of Vocational Agriculture." Thesis, Ed.D. 1954. Michigan State College, East Lansing, Michigan. 321 pp.

Purpose: To devise a performance rating scale for measuring performance of teachers of vocational agriculture; to discover pre-teaching characteristics related to measured-teacher success; to discover if present pre-teaching data were sufficient for guidance and limited selection of prospective teachers; to develop suggestions for improvement of pre-teaching information related to the guidance services of counseling and selection of prospective teachers; and to develop suggestions for methods of continuous study in this area.

Method: A performance rating scale, composed of 107 items, was developed with the aid of a "jury of experts", which consisted of six teacher educators, five state supervisors and four school administrators in Michigan. A trial test was conducted, using the instrument evaluated and weighted by the 15 jurors. Each rater checked each item on the scale as either being descriptive or not descriptive of each teacher's performance or as having no basis for a decision. Two revisions of the scale were made. Ratings of teacher performance for 88 teachers were secured from three sources: teacher educators, state supervisors, and school

administrators. Performance scores for each teacher were correlated between raters to determine teachers to be studied. Performance scores on which two or more raters agreed were studied in relationship to pre-teaching characteristics. Pre-teaching data, including measures of scholastic ability and achievement, professional course work, interest scores and several aspects of qualifications in farming background and experiences, were secured from student profiles and the college record office. Reports of visits by teacher educators and state supervisors were studied in preparation for making five case studies of teachers whom raters did not agree as to their performance. Prediction of teacher performance on the basis of 21 student-profile factors was made by two selected educators.

Findings and interpretations: Two or more raters agreed on the performance of 70.4 percent (62 of 88 teachers) of the teachers on whom ratings were secured. The expected reliability of the instrument ranged from .562 to .671. The 62 teachers studied had statistically higher student-teaching marks than persons trained who either had not entered teaching or who left teaching shortly after entering it. On the basis of several pre-teaching characteristics, the group studied was a "superior" one. A skewed distribution of performance scores resulted from the ratings made. Average performance scores were not related statistically to any of the 21 pre-teaching factors nor to student-

teaching performance. The following areas of performance of teachers were related positively to certain pre-teaching characteristics: "Working with People in Community", "Conducting Programs with All-Day Students", "Conducting Programs with Young and/or Adult Farmers", "Teaching Farm Mechanics", and "Utilizing Acceptable Methods of Teaching." No significant relationships were established between FFA membership, years of high-school agriculture, "Reading Comprehension" scores, Education 305, Education 207, "Basic English", and student-teaching marks, and the subsequent performance of teachers. Three areas of performance were negatively related to certain pre-teaching characteristics: "Working with People in Community", "Maintaining Professional Standards and Relationships" and "Providing On-Farm Instruction."

The case studies revealed an apparent, positive relationship between pre-teaching data and subsequent performance. Several reasons why raters did not consistently agree on some teachers' performances were also revealed. Some raters rated teachers on general impression rather than for specific aspects of performance called for on the rating scale.

Two selected educators were unable to successfully predict the performance of the 62 teachers studied on the basis of student profile data alone.

The following recommendations were made: (1) revise the performance rating scale for use as a self-evaluative instrument;

(2) utilize current student-profile data for future studies, rather than for selecting or predicting purposes; (3) collect additional pre-teaching data, i.e., extra-curricular activities, social adaptability, and work experiences with organized groups; (4) develop an instrument to measure social competencies of teachers; (5) conduct a study on the pre-teaching data of all persons trained as teachers and their subsequent performance in a longitudinal study utilizing the case-study procedure and possibly including the use of forced-choice rating instruments to measure certain aspects of teacher performance.

Signed: H. M. Byram

H. M. Byram, Chairman
Guidance Committee

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CHAPTER I

INTRODUCTION

Statement of Problem

Since the passage of the National Vocational Education Act in 1917,[1] one of the problems confronting institutions preparing teachers of vocational agriculture has been that of assessing potentialities for growth of prospective teachers during training to determine relationships of such growth to success in teaching. Teacher educators have generally agreed that some human characteristics and competencies must be possessed by prospective teachers in a reasonable degree for them to teach in an acceptable manner. These characteristics have included such factors as mental and physical health, intellectual ability, enthusiasm for teaching, personal interests, traits, drives, social maturity, emotional stability, reasonable degree of farm experience, and success in student teaching.

A review of educational literature revealed that present methods employed for selection and guidance of prospective teachers are inadequate. There has also been indication that some prospective teachers possessing traits and characteristics that prevented

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[1] Public Law No. 347, 64th Congress. Approved February 23, 1917.

the best adjustment on the job have been allowed - and perhaps sometimes unconsciously encouraged - to enter the teaching profession. This adjustment factor may have been the reason why some teachers are more successful, due to being able to adapt themselves well; whereas, other teachers, lacking the ability to adjust due to some personality or social characteristic are less successful in teaching. In other instances, inherent differences in the types of communities have created a wide variety of adjustments required for any individual. Whether the individual has certain measurable traits and characteristics which might indicate either good or poor adjustment and consequently good or poor teaching performance is a vital question. This appears as one of the great problems facing teacher-educators today. With this in mind, the task of studying the relationship between pre-teaching characteristics of prospective teachers of vocational agriculture recorded in the Department of Agricultural Education, Michigan State College, and their subsequent performance in teaching vocational agriculture was undertaken. Such a study involved not only careful study of students' pre-teaching characteristics, but also a follow-up of students who became teachers in an attempt to secure information regarding their teaching performance.

Purposes of Study

More specifically, the purposes of this study may be stated as follows:

1. To devise a performance rating scale for use in measuring performance of teachers of vocational agriculture.

2. To discover pre-teaching, measurable characteristics of prospective teachers related to measured-teacher success.

3. To discover if present pre-teaching data were sufficient for guidance and limited selection of prospective teachers.

4. To develop suggestions for improvement of pre-teaching information related to the guidance services of counseling and selection of prospective successful teachers in Michigan.

5. To develop suggestions for methods of continuous study in this area.

Need for Study

Some of the questions related to this study indicating its need are: (1) Can teacher-educating institutions predict teaching success?, (2) What knowledges, skills, attitudes, interests, and standards are related to success?, (3) Are there relationships between measurable traits and measured-teaching success?, (4) On what bases should a teacher be classed as a successful teacher?, and (5) How might teacher-educating institutions improve their

selection and guidance programs from an analysis of pre-teaching data. These questions help clarify the need for this study.

By studying the annual reports of the state supervisor of vocational education in agriculture in Michigan, it was discovered that approximately a 10 percent turnover of teachers of vocational agriculture occurs annually.(2) This percentage turnover did not include teachers required for new departments added. Apparently, there are some reasons for this turnover. Some of these reasons might be detected in this study.

In 1947-48, there were 156 adult classes, 13 young-farmer classes, and 196 all-day programs in operation in Michigan. In 1949-50, there were 163, 53, and 206, respectively. These numbers increased to 232, 81, and 217, respectively, in 1951-52. In 1952-53, there were 275, 78, and 222, respectively. This increase in number of classes and programs has also resulted in an increased number of persons receiving instruction. The total number of persons enrolled in vocational education in agriculture was 17,416 in 1947-48 and increased to 20,313 in 1952-53. While these trends are favorable, there have been periodic decreases in enrollment and classes from one year to another.(3)

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[2] "Annual Reports: Agricultural Education." (1950, 1951, 1952, 1953 - From the Office of the State Supervisor of Vocational Education in Agriculture.) Lansing, Michigan. (Typed)

[3] Loc. cit.

In 1949-50, enrollment in all-day classes increased 12 percent, yet there were 12 percent and six percent decreases in young-farmer and adult-farmer enrollments, respectively. In 1950-51, there was an 18 percent increase in young-farmer enrollment. In 1952-53, there was a 19 percent decrease in adult-farmer enrollment and a one percent decrease in young farmers. However, at the same time, the total programs in Michigan increased seven and six-tenths percent in number of programs and decreased seven percent in enrollments.(4)

Are these fluctuations in enrollments and classes resulting partially from the performance of teachers with varying degrees of competencies?

Assuming that qualifications and performance of teachers, as well as the standards for facilities and enrollments, affect whether departments are retained on a reimbursable basis or not, some evidence is available to support the contention that programs are dropped due to poor performance of teachers and programs being below minimum standards. In 1950, six departments which had previously been dropped were re-established and two new departments were opened. In 1951, one department was closed and nine new departments were opened. In 1952, three departments were closed and six new ones were opened. In 1953, three more departments were

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[4] *Loc. cit.*

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closed and eight new departments were opened.(5) If departments were dropped because of poor standards or poor teacher performance, there is an apparent need to inform trainees about standards and levels of performance they must maintain. Whether levels of performance may be determined by an analytical study of pre-teaching data and subsequent teacher performance is questioned. However, this dilemma further suggests the need for this study.

The placement of teachers is somewhat indicative of the acceptance of graduates into teaching employment. In 1950, 54 persons qualified for teaching vocational agriculture in Michigan. Thirty-nine were placed as teachers of vocational agriculture. Nine began instructional work in institutional-on-farm training for veterans. Four went into related agricultural work and two were not placed immediately. This was true even though there was an insufficient number of teachers to serve the needs of expansion in the state program.(6) In 1951, 67 persons were trained; 40 were placed as teachers of vocational agriculture; 12 were employed as veteran teachers; seven went into related agricultural work; two were not placed; and six went into military service. In 1952, 50 persons were trained; 23 were placed as

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[5] *Loc. cit.*

[6] *Loc. cit.*

teachers of vocational agriculture; nine were employed as veteran teachers; three went into related agricultural work; two were not placed; two went into military service; and 11 began graduate study. In 1953, 48 persons qualified; 22 were placed as teachers of vocational agriculture; three went into related agricultural work; five were not placed immediately; 13 went into military service; three began graduate study; and four were employed to teach non-vocational agriculture classes. The need for teachers is evident, yet annually a large number of persons trained go into other employment.(7) Is this partially resulting from some persons trained not being acceptable for employment? If this is so, the need for knowing the pre-teaching characteristics which might prove to be undesirable is evident.

Nelson gathered opinions of Michigan students of vocational agriculture regarding their guidance needs and the school program in general. He found that 34.3 percent of 686 students said that - compared to other courses - the agricultural course was "the best in the school;" 38.4 percent said it was "better than most"; 24.2 percent said it was "above average"; two percent said it was "not as good as most"; and one percent said it was "the poorest course in the school."(8) Fifty-seven percent indicated that

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[7] Loc. cit.

[8] Kenneth G. Nelson, "Attitudes of Michigan Students of Vocational Agriculture Toward Guidance in the Schools." Michigan State College, East Lansing, Michigan. 1953. p. 10. (From the personal files of K. G. Nelson).

they had ideas as to how to get started in farming; 43 percent either did not have ideas or were in doubt as how to get started in farming. Fifty-seven percent, also, said that their parents knew enough about the vocational agriculture program to help them plan their work; and 43 percent were either in doubt or did not think that their parents knew enough about the program to help them.[9]

These findings are significant to the extent that they might reflect the performance of teachers and the characteristics of the more and less successful teachers. These pupil opinions indicate that some teachers are not providing the best course in school, or perhaps as good a program as might be desired. Can more successful teaching result from a study of pre-teaching data and performance of teachers with varying degrees of efficiency? The possibility of more effective guidance of "expected" successful trainees might result if such relationships were known.

Since the concept of what constitutes teaching success is rather nebulous, it appears that many teacher-educating institutions have engaged in selecting and guiding teachers on unproven, yet respectable and acceptable, assumptions of what constitutes teaching competency. If a teacher educator is to adequately perform his duties, it is apparent that he must know the qualities of the

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[9] Ibid., p. 11.

"good teacher" to educate prospective teachers professionally for the job ahead. If competencies and characteristics that make up teaching success could be identified, it would be highly desirable and necessary to know what they are.

To evaluate the effectiveness of teacher-educating curricula and programs, teacher educators must know what competencies are needed in their trainees and how they are acquired. It seems essential that they be known if any selection program is to be put into action or if prediction of success is to be made.

There are other evidences of the need for this study. The data on pre-teaching characteristics in the Department of Agricultural Education had never been analyzed to discover their relationship to performance in teaching vocational agriculture. These pre-teaching data possessed many potentialities in the use of guidance and selection, since they served as "a mirror which reflects the student to himself (and others) in light of measurements of an objective nature which have been undertaken."(10) Byram indicated possible and needed research studies involving four or five-year follow-ups of students who were currently teaching.(11)

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[10] H. M. Byram, Mimeographed Article. "Selection and Guidance of Prospective Teachers of Vocational Agriculture - Over-all Aspects of the Problem." Michigan State College, East Lansing, Michigan. (Insert by the investigator.)

[11] Loc. cit.

Numerous persons in the field of agricultural education have seen the need for study involving pre-teaching traits and their relationships to the performance of teachers of vocational agriculture. Garner, in presenting some of the implications of his study, pointed out an apparent weakness of teachers of vocational agriculture in human relationships in conducting supervised farming programs. Even though teacher performance in this study is concerned with all aspects of performance including that of conducting supervised farming programs, it was felt that Garner's findings and implications were representative of specific area needs. He states:

> "It may be possible that the failure of teachers to make regular contacts with students and parents, and to solicit their cooperation in worthy projects such as the holding of parent meetings could be traced to certain inadequacies which the teachers recognize in their abilities to work effectively with other people. It would appear that this study has revealed clues of additional needs which are required by teachers of vocational agriculture in the area of human relationships." (12)

These inadequacies which Garner discovered should either be corrected in the pre-teaching period or a selection of teaching candidates should be made to eliminate persons entering teaching

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[12] Raymond A. Garner, "Practices of Teachers of Varying Proficiency in Conducting Programs of Supervised Farming in Vocational Agriculture in Michigan." Thesis, Ph.D. Michigan State College, East Lansing, Michigan. 1951. p. 332.

who are unable to cope with the responsibilities involving human relationships in teaching vocational agriculture.

From a slightly different standpoint, Super pointed out that some of the things a person does well are the result of inherited aptitudes and behavior tendencies in a favorable environment which brings him satisfaction and approval from self and others. From successes which a person develops, he crystallizes an image of how he wants himself to be.(13) Super states:

> "Similarly, holding and adjusting to a job is for the typical beginning worker a process of finding out, first, whether that job permits him to play the kind of role he wants to play; secondly, whether the role the job makes him play is compatible with his self-concept (whether the unforeseen elements in it can be assimilated into the self or modified to suit the self); and, finally, it is a process of testing his self-concept against reality, of finding out whether he can actually live up to his cherished picture of himself." (14)

An important implication that Super brought out was that in order to do the most effective job of guidance, a person must have a good understanding of the personal adjustment which he is trying to further. This requires information on the person being counseled and the occupation being considered.(15) The necessity

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[13]Donald E. Super, "Vocational Adjustment: Implementing a Self-Concept." Occupations - The Vocational Guidance Journal. 30:88-92. November, 1951.

[14]Ibid., p. 89.

[15]Loc. cit.

for understanding persons and factors of success in teaching vocational agriculture supports the need for this study.

Numerous studies point out the dilemma in predicting teacher success; however, one cannot dismiss the problem as one that cannot be solved. Barr, who has worked diligently on this problem, points out that the identification and definition of teaching competencies is as yet by no means satisfactory.(16)

Evidence compiled by the National Standards Committee for Vocational Education in Agriculture(17) supports the contention that the quality of vocational programs is closely related to the qualifications and performance of teachers of vocational agriculture. Establishment of relationships between pre-teaching characteristics and performance of teachers might aid in developing better quality programs by providing valid counseling information for trainees.

To summarize the evidence of the need for this study, teacher turnover in Michigan is a problem that should be reduced. Performance of teachers, no doubt, affects the rate of turnover.

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[16] A. S. Barr, "Measurement and Prediction of Teaching Efficiency: A Summary of Investigations." Journal of Experimental Education. 16:203-282. June, 1948.

[17] Federal Security Agency, U. S. Office of Education, An Evaluation of Local Programs of Vocational Education in Agriculture. Vocational Division Bulletin No. 240. Agricultural Series No. 58. Washington, D. C. 1949. 75 pp.

Trends in developing complete programs of vocational agriculture indicate some progress; however, it seems that even more is highly desirable. Fluctuations in enrollments and classes partially indicate that teachers might be a factor in these phenomena. The fact that departments are dropped from reimbursement indicates that the standards of the departments are low or the effect of the program in the communities is questionable. Some persons trained are not placed as teachers of vocational agriculture even though there is almost constant need. Students of vocational agriculture indicate that approximately three percent of the courses in agriculture in Michigan are not as good as other courses, or are the poorest courses in the schools. Several leaders in education have presented opinions which indicate the need for studying relationships of pre-teaching data and performance in teaching.

Do these findings imply that performance of teachers of vocational agriculture affects the outcome of the vocational agriculture program? If so, is performance related in any way to pre-teaching characteristics of prospective teachers? It is believed that there are relationships which should be known if effective guidance of trainees is to occur. Therefore, there is a need for this study.

Scope of Study

Since this problem was so extensive and had widespread implications in teacher-education work, it was necessary to delineate the area in which research would be conducted. The study was concerned primarily with the relationship between some pre-teaching measurable characteristics and subsequent performance in teaching vocational agriculture, with the following stipulations:

1. The study includes 88 teachers of vocational agriculture in Michigan for whom profiles had been prepared at Michigan State College in the Department of Vocational Education between school year 1948-49 and December, 1952, and who were employed as teachers of vocational agriculture at the time data were collected.

2. The study excludes teaching candidates who, upon graduation, did not go into teaching, even though profiles for them were available, since the study was concerned with relationship of some pre-teaching characteristics and of evidences of successful teaching performance of teachers currently employed.

3. No tests for performance or increase in factual knowledge or attitudes in vocational agriculture were administered to students currently enrolled in classes of vocational agriculture taught by teachers being studied as a means of evaluating teacher performance, since this was an area that would have consumed the time and efforts of an individual research project within itself.

4. No self-evaluative instrument was completed by any teacher of vocational agriculture as a measure of his teaching performance. This eliminated the possibility of a subjective judgment from teachers regarding their performance.

Limitations of Study

It was anticipated that this study would have certain inherent limitations. Perhaps one of the major limitations was found in the performance rating scale developed. The fact that the scale did not adequately discriminate between persons scoring high in performance presented a limitation in the method of analyzing data.

The rating instrument for teacher performance, prepared and evaluated by a jury of experts composed of six teacher educators, five state supervisors, and four administrators, was administered only once to the respective raters to receive derived scores of teacher performance. No test of reliability of the evaluative forms was conducted other than that which occurred by making a trial test and the actual rating itself.

Another limitation was that some performance scores of teachers of agriculture between raters did not correlate at the five-percent level of significance. Possible explanations for this fact may depend upon other limitations. These perhaps include:

inadequate observation of some teachers being rated; personal biases of the raters; rating a teacher more on general opinion than on specific items of performance as called for; a halo effect in operation; raters consistently rating teachers either high or low on performance; and inexperience in using the particular rating scale for rating job performance.

Since only performance was being evaluated, some raters may have rated teachers unconsciously on personality traits and attitudes when checking different aspects of performance. This may have greatly influenced some performance scores. To the extent that this was true, another limitation was in effect.

This study included 88 teachers of vocational agriculture in Michigan. Any interpretations of findings and recommendations are necessarily based on findings on this group. Whereas it was anticipated that any findings would have applications other than in Michigan, the fact that only Michigan teachers were included may limit such applications.

It is recognized that a single profile factor cannot be studied in complete isolation from other factors. Factors are in flux, dependent upon and interrelated with one another. However, since the distribution of performance scores were such that performance as related to profile factors could not be readily studied by the statistics of partial, linear and multiple correlation, a definite limitation is apparent in the analyses and usefulness of data. Had performance scores more nearly approached a normal

distribution, partial elimination of this limitation could have been accomplished.

Definition of Terms

In order that terms which may have diverse meanings to individuals not be misunderstood, certain terms have been defined and presented in the framework within which they are used.

1. Pre-teaching characteristics: measurable characteristics recorded on a student profile. Examples of such characteristics are American Council on Education test score results, reading comprehension test score results, composite staff evaluation of student, term marks on education courses, and mechanical index ratings. Such records were compiled for trainees at Michigan State College and were therefore termed pre-teaching characteristics.

2. Student profile: a composite representation of certain individual student scores and standards achieved on measurable characteristics compiled during the training period at Michigan State College preceding employment as a teacher of vocational agriculture.[18]

3. Measured-teaching success: success in teaching as indicated by administrators, state vocational supervisors and teacher-educators on forms provided them. This is a standard insofar as it

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represents opinions of state supervisors, teacher educators, and school administrators who administered school programs in which the teacher studied were a part.

4. Teachers of vocational agriculture: men who had been trained for positions as teachers of agriculture for employment in reimbursable programs of vocational education in agriculture. Such persons were employed when data were collected. They were employed by local boards of education and were responsible to the local school administrators and boards of education for conducting the programs of vocational agriculture at the secondary school level.

5. School administrator: a person designated as the school representative charged with the administration of a secondary school program in which vocational agriculture was a part. The term as used in this study designates either school superintendents or school principals.

6. State supervisor: a supervisor of vocational education in agriculture employed by the State Board of Control for Vocational Education in Michigan. Qualifications and duties of such representative staff supervisors can be found in a detailed publication by Swanson of the United States Office of Education(19) and in the

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[19]Herbert B. Swanson, "The State and the Preservice Preparation of Teachers of Vocational Education (Federally Aided Programs.) Vocational Division Bulletin No. 219, General Series No. 6, Federal Security Agency, U. S. Office of Education, Washington, D.C. 1941. 138 p.

Michigan State Plan for Vocational Education.[20]

7. Teacher educators: persons employed by Michigan State College and charged with the responsibility to provide for specific professional training of teachers of vocational agriculture. The activities of teacher educators and of the process of training of teachers are set forth in a federal publication.[21]

Qualifications of teacher-educators are also given by Swanson.[22]

8. Vocational Agriculture Teacher Performance Rating Scale: a rating scale prepared in cooperation with a jury composed of school administrators, state supervisors, and teacher educators.[23] The rating scale served as the primary criterion of teacher performance. It consists of items evaluated and weighted for their relative

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[20] Michigan State Plan for Vocational Education. Bulletin No. 201. The State Board of Control for Vocational Education. Lansing, Michigan. 1947. 66 pp.

[21] Federal Security Agency, U. S. Office of Education, Administration of Vocational Education. Vocational Education Bulletin No. 1, General Series No. 1, Revised 1948. p. 24.

[22] Swanson, op. cit., p. 132.

[23] Appendix C.

importance as judged by the jury of experts. The procedure for development of the scale is presented in Chapter III.

9. Performance score: a score computed mathematically from the numerically weighted items on the Vocational Agriculture Teacher Performance Rating Scale. The procedure used to weight items and to compute the performance score is presented in Chapter III. The performance score is intended as a measure of teaching competency as judged by teacher educators, state supervisors and school administrators.

10. ACE Intelligence test scores: an intelligence test score on the American Council on Education Psychological Examination. The examination is administered to students entering Michigan State College for the first time on the undergraduate level. It is a group test of scholastic ability, standardized on entering college freshman. ACE scores are given in terms of deciles. Norms are based upon Michigan State College freshman.

11. Reading Comprehension test scores: scores on this examination are used in the Basic College to identify students that should be referred to the Reading Improvement Service. Scores are given in terms of deciles. Norms are based upon Michigan State College freshman. This examination is one of a battery of examinations given to entering freshmen at Michigan State College. It is a measure of reading comprehension from "The Michigan State College Reading Test."

12. Mechanical index: a measure of mechanical interest and ability established through cooperation of the Department of Agricultural Education and the Department of Agricultural Engineering. Scores are derived from a checklist of traits observed by an instructor in agricultural engineering and are recorded by deciles. It has not been standardized.(24)

13. Honor-Point Ratio: ratio between honor points and credits earned. Honor-point ratios for the first, second, and third years in college are recorded on the student profile. Honor-point ratios are computed on the basis of a mark in courses of an "A" equal to four points, "B" equal to 3 points, "C" equal to 2 points, "D" equal to one point, and "F" equal to zero points. Approximately 45 credits of course work are included in the honor-point ratio for the first year; 90 for the second year; and 145 for the third year.

14. Five Basics: five of seven Basic College courses were required of all undergraduate students. They included: Written and Spoken English, Biological Science, Physical Science, Social Science, Effective Living, History of Civilization, and Literature and Fine Arts. The score provided the five basics in this study is computed on the same basis as honor-point ratio. For example, a mark of "A" in a course in social science carries

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24 Appendix L.

four honor-points of credit.

15. Basic English: the scores listed for this factor represent an average honor-point ratio of courses in Basic English enrolled in the Basic College at Michigan State College. This factor was included because of deficiencies of teachers in this area.

16. Education 202: this course has a prerequisite of sophomore standing and is known as "Principles of Education." It is:

> "An introductory course for all who wish to prepare for high school teaching. It is a resume of the educational philosophy of the public school system with specific emphasis on that of Michigan. Attention is given to the work of the classroom teacher and to available means for evaluating teaching in the light of the philosophy developed. In connection with the course, opportunity is given the student to counsel with the instructor regarding his fitness and qualifications for teaching. The course serves also as a basis for more specialized courses which follow." (25)

17. Education 207: the course name is "Educational Psychology" and has prerequisites of Education 202 and Psychology 201. It is:

> "A study of those principles of psychology related to the problems of education. Habits, memory, motives, individual differences,

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[25] Michigan State College Catalog 1946-1948. Volume 42, Number 16, Michigan State College, East Lansing. March, 1948. p. 255.

> and the laws of learning will be given special attention." (26)

18. Education 305: the course name is "Introduction to Agricultural Education." It is described as:

> ".....designed to develop an understanding of the objectives and basic elements of a complete program of vocational education in agriculture and to prepare students for student-teaching experiences and study of methods of teaching vocational agriculture." (27)

19. Psychology 201: the course name is "General Psychology." It is:

> "An introduction to the scientific study and interpretation of human behavior. Consideration of such topics as learning, motivation, emotion, intelligence, perception, personality, and inter-personal relationships. Basic psychological principles with the practical application of these principles to everyday living." (28)

20. Interests of a teacher, a farmer, and teaching satisfaction: interest scores are derived from the "Vocational Interest Blank for Men (Revised) Form M."[29] There are three scales used to derive the interests as listed. Scores on "Teaching

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[26] Loc. cit.

[27] Ibid., p. 256.

[28] Ibid., p. 421.

[29] E. K. Strong, Jr., "Vocational Interest Blank for Men (Revised) Form M." Stanford University Press, Stanford, California. 1938.

Satisfaction" are based upon a scale developed by Nelson.(30) All interest scores are listed in broad groupings designated by "A", "B", and "C". An interest rating of "A" means that a person has the interests of the group on which the particular scale is based. A rating of "B" means that a person probably has the interests of the group, and a rating of "C" means that the person does not have such interests. Raw scores on the three scales can be converted to percentile and standard scores by referring to the interest report form.(31) Strong's blank was originally published in 1927 and revised in 1938.

21. Instructors' rating (composite): this student profile factor has five degrees of quality: superior, excellent, acceptable, doubtful, and unsatisfactory. The rating is an averaged or composite score of the trainee in terms of judgment of the over-all potential qualities of the man preceding student teaching by teacher educators familiar with the trainee.

22. Amount and Coverage of Farm Experience: the amount of farm experience is recorded in terms of years of experience beyond the age of 15 years. Coverage of farm experience pertains

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30K. G. Nelson, "The Interests of Teachers of Vocational Agriculture as Related to Vocational Satisfaction." Thesis, Ph.D. University of Minnesota, Minneapolis, Minnesota. 1952. 329 pp.

31Appendix K.

to the scope and variety of experiences, and a mark for this factor is derived by an outlined procedure developed in the Department of Agricultural Education for this purpose.(32)

23. Future Farmers of America Rank: this factor applies to the degree attained in the Future Farmers of America organization. The ascending degree advancements are: Greenhand Farmer, Chapter Farmer, State Farmer, and American Farmer.

24. Average mark in "100-200" agricultural courses: the average mark in series 100 and 200 technical agricultural courses is computed as the honor-point ratio. Courses are represented from such areas as: agricultural engineering, agricultural economics, soils, animal husbandry, poultry, et cetera.

25. Student-teaching marks: each prospective teacher received two letter marks for his student-teaching experience. The courses to which these marks are credited are Education 406a and 406b, each carrying four quarter hours of credit. The title of each course is "Student Teaching in Agriculture." Student teaching is evaluated cooperatively by the teacher educator, supervising teachers and the student teacher.

26. Statistically significant: when this phrase is used, it means that the statistics are significant at the five-percent level unless stated otherwise. Significance at the five-percent

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32 Appendix I.

level means that the association found or the differences established between factors would be expected 95 out of 100 chances with a normal distribution.

A selected review of educational research was made. One purpose for the review was to discover techniques other investigators had used in studying teacher performance. Other purposes were as important. Pertinent findings and conclusions of the research and literature reviewed are presented in Chapter II.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to present a review of selected literature and related writings to this study. Consideration is given to investigations most directly related to this study. When studies were reviewed, only those portions pertaining to this study were closely studied. In all cases, only those parts of research or materials which have a connection to this study are reported. Included in this review are some background materials of items included on the student profile, along with related research data. Some findings regarding what constitutes teaching efficiency, the characteristics of successful teachers, and problems regarding the measuring of performance are presented.

The terms - "teaching effectiveness, efficiency, and ability" - are used throughout the review, since the term "performance" was not used in the literature. While the terms of performance and effectiveness, et cetera, are not necessarily synonymous, they do possess somewhat the same connotations and are used interchangeably.

The annotated bibliographies of studies conducted in agricultural education proved to be very helpful in discovering the non-thesis, master's-degree and doctoral-degree studies and dissertations. These annotated bibliographies are reported in separate publications entitled Summaries of Studies in Agricultural Educa-

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tion.

In some cases, more recent studies related to the present one were requested from other institutions but were not received

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[1]Summaries of Studies in Agricultural Education, U. S. Office of Education, Vocational Education Bulletin No. 180, Agricultural Series No. 18. United States Government Printing Office, Washington, D.C. June, 1935. 196 pp.

[2]Summaries of Studies in Agricultural Education, Supplement No. 1, Interstate Printers and Publishers, Danville, Illinois. September, 1943. 199 pp.

[3]Summaries of Studies in Agricultural Education, Supplement No. 2, U. S. Office of Education, Vocational Division Bulletin No. 237, Agricultural Series No. 57. United States Government Printing Office, Washington, D.C. 1948. 120 pp.

[4]Summaries of Studies in Agricultural Education, Supplement No. 3, U. S. Office of Education, Vocational Division Bulletin No. 242, Agricultural Series No. 59, Office of Education. United States Government Printing Office, Washington, D.C. 1950. 61 pp.

[5]Summaries of Studies in Agricultural Education, Supplement No. 4, Vocational Division Bulletin No. 246, Agricultural Series No. 61, Office of Education. United States Government Printing Office, Washington, D.C. 1951. 48 pp.

[6]Summaries of Studies in Agricultural Education, Supplement No. 5, Vocational Division Bulletin No. 248, Agricultural Series No. 62, Office of Education. United States Government Printing Office, Washington, D.C. 1952. 62 pp.

[7]Summaries of Studies in Agricultural Education, Supplement No. 6, Vocational Division Bulletin No. 251, Agricultural Series No. 63, U. S. Department of Health, Education, and Welfare. United States Government Printing Office, Washington, D.C. 1953. 100 pp.

[8] Summaries of Studies in Agricultural Education, Supplement No. 7, Vocational Division Bulletin No. 253, Agricultural Series No. 64, U. S. Department of Health, Education, and Welfare. United States Government Printing Office, Washington, D.C. 1953. 75 pp.

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In preparing this review, the studies have been grouped into four major areas followed by a brief summary. This grouping was made to facilitate study of major areas and to present data in a logical sequence. In the first section, there are reported those investigations and related materials on items included on the student profile.

The second section includes studies on definitions of teaching efficiency, some philosophical statements related, and what constitutes teaching efficiency. Some consideration is given to what descriptive statements characterize the so-called "good" and "poor" teacher.

The third section in the review is composed of studies involving the problems and methods of measuring teaching performance. Consideration is given to techniques of measurement and the analytical methods employed in studying performance data.

Finally, the fourth section of the review considers those studies which are general in nature and which contain findings of relationships of teaching performance to pre-teaching characteristics. The fourth section is followed by a brief summary of the entire selected review of literature and related materials.

Studies and Writings Relating to Factors Included on the Student Profile

Few of the factors on the student profile have been the

concern of research. For example, of the 21 factors being studied, only two have received any degree of attention. Primarily as a result of this fact, definitions and explanations were presented for a majority of the factors in "Definition of Terms" in Chapter I.

As to the purpose and usefulness of student profiles, Ryans essentially proposed that profiles be made for each prospective teacher. He presented an example of how to prepare qualification profiles by statistical means, using standard deviation, averages, and conversions of original scores to common ratings.(9) The examples of completed profile charts he presented were not unlike the ones on which the present study was based.

A considerable amount of research has been conducted on The American Council on Education Psychological Examination. Super commented that the items on this examination are probably less affected by knowledge than for most group tests. "As these tests and items have been selected and modified from earlier tests and tried out over a period of nearly twenty years on large numbers of subjects, with adequate funds for necessary research, they constitute an unusually valid and reliable instrument."(10)

Evidence of the reliablity of the ACE Psychological Examination was presented by Super. He said: "The reliability of the A.C.E.

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[9]David G. Ryans, "Statistical Procedures in the Selection of Teachers." Journal of Educational Research. 40:695-705. May, 1947.

[10]Donald E. Super, Appraising Vocational Fitness by Means of Psychological Tests. Harper and Brothers, New York. 1949. p. 115. (Reprinted by permission from Appraising Vocational Fitness by Donald E. Super, Harper & Brothers, New York. 1949.)

tests has been consistently high. One study by the test authors reported odd-even reliabilities of .95 for the total score, and of .87 and .95 for the Q and L scores respectively, for the 1938 college edition."[11]

As to the validity of the A.C.E., Super reported that:

> "There are practically no validation studies of this test using strictly vocational criteria, although several studies have shown that its total scores are related to success in some types of professional training. . . Seagrove[12] found that well-adjusted student-teachers, and maladjusted student-teachers of average or low intelligence in one college, tended to remain in training, whereas the bright but maladjusted students dropped out - perhaps because they recognized the misfit and saw other more appropriate opportunities. Ratings of success in practice teaching did not correlate significantly with A.C.E. scores. Rolfe[13] found no relationship (r = .10) between A.C.E. scores and the teaching success of 52 Wisconsin one- and two-room teachers, the criterion being tested pupil progress."[14]

Regarding the validity of the A.C.E. in relationship to the measurement of teaching efficiency, Barr stated:

> "Of the measures employed in the investigation, intelligence as measured by The American Council Psychological Examination----and interest in teaching as measured by Yeager's Scale for

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[11] Ibid., p. 117.

[12] M. V. Seagrove, "Prognostic Tests and Teaching Success." Journal of Educational Research. 38:685-690. 1945.

[13] J. F. Rolfe, "The Measurement of Teaching Ability:Study Number Two." Journal of Experimental Education. 14:52-74. 1945.

[14] Super, op. cit., p. 122.

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> measuring attitudes toward teachers and teaching profession appear to possess somewhat higher validities than other tests employed in the investigation." (15)

No statistical evidence was given, however, to support his conclusion.

It was pointed out by Clark that the 105 teachers in his study, grouped according to deciles on The American Council on Education Psychological Test for College Freshman, remained in and left the field of teaching in differing percentages. There was some indication that there was a negative selection factor of teachers remaining in the teaching of vocational agriculture. Clark stated:

> "The percentages of those ranked in the first three deciles was 34.0 and 44.5 for those who left and those who remained, respectively. For those who left, 40.4 per cent ranked in deciles four to seven and 33.3 per cent of those who remained ranked in these deciles. Of those who left, 25.6 per cent ranked in deciles eight to ten, and 22.2 per cent of those who remained ranked in these three deciles. None of the differences of percentage was significant." (16)

Another factor on which considerable study has been conducted is the "Vocational Interest Blank for Men (Revised) Form M."[17]

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[15] A. S. Barr, "The Wisconsin Study of Teaching Ability." Journal of Educational Research. 33:684. May, 1940.

[16] Raymond M. Clark, "Factors Associated With Decisions of Michigan Teachers to Remain in or to Leave the Field of Teaching Vocational Agriculture." Thesis, Ed.D. Michigan State College, East Lansing. 1950. pp. 63-64.

[17] E. K. Strong, Jr., "Vocational Interest Blank for Men (Revised) Form M." Stanford University Press, Stanford, California. 1938.

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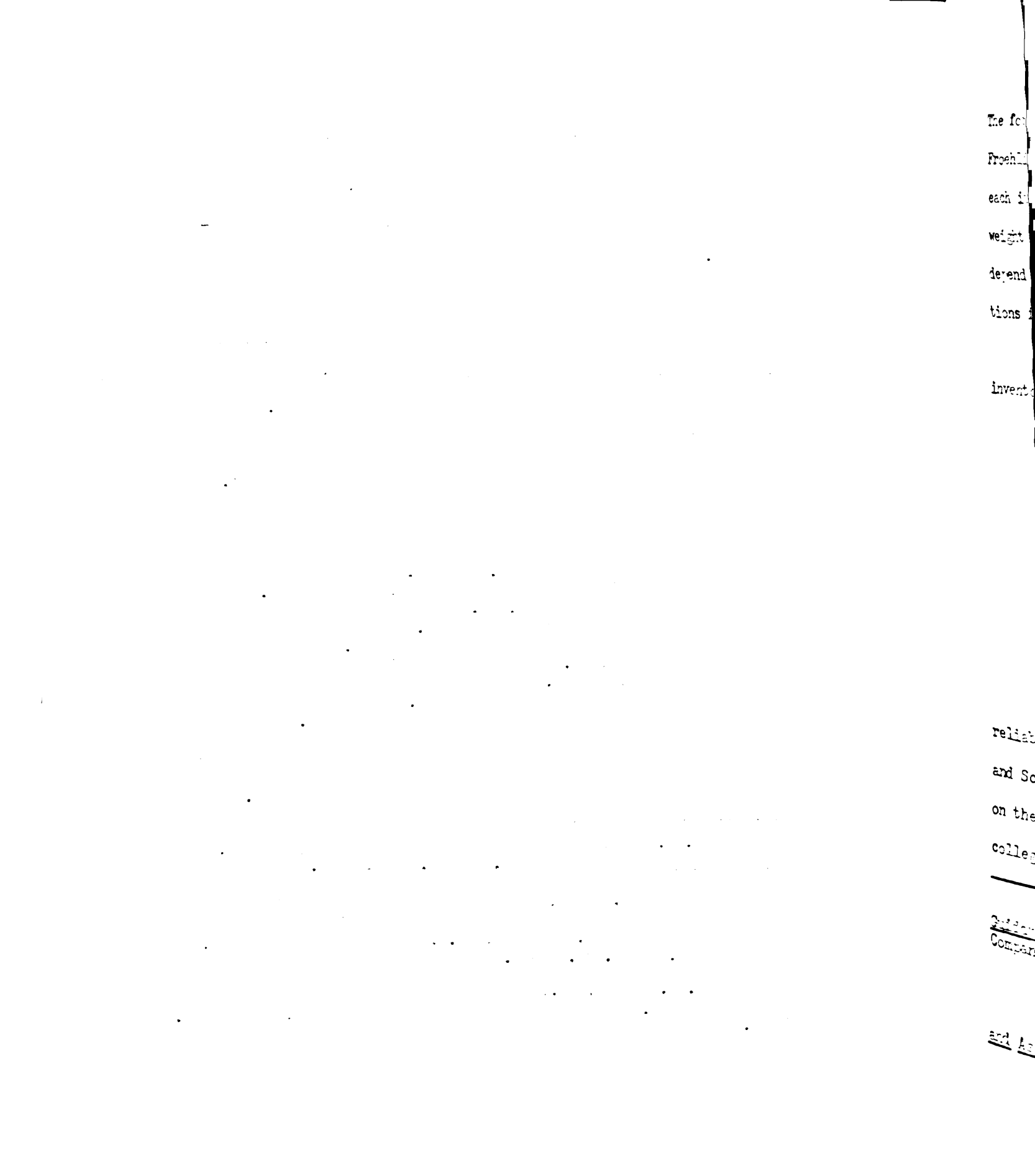
[17] E. K. Strong, Jr., "Vocational Interest Blank for Men (Revised) Form M." Stanford University Press, Stanford, California. 1938.



The form was originally published in 1927 and revised in 1938. Froehlick and Darley indicated that: "In scoring the inventory, each item has weights assigned to its response positions. The weight may be either negative or positive; its direction and size depend upon how that item differentiates men-in-particular occupations from men-in-general."[18]

As to the meaning of scores obtained by the use of Strong's inventory of interests, Froehlick and Darley said:

> "The final scores thus obtained are converted into letter grades of A, B+, B, B-, C+ and C. The meaning of these grades is summarized by Strong in these words: 'An A rating means the individual's interests agree very well with the interests of men in the occupation; a C rating means that there is no such agreement; whereas scores in the B range indicate the degree of approximation to A or C ratings'... Scores should never be viewed as conclusive. They should be considered as merely suggestive, taking into account all other information bearing upon one's vocational choice." (19)

A considerable amount of research has been devoted to the reliability and validity of Strong's interest inventory. Harsh and Schrickel reported that scores on 21 occupations correlated .75 on the average with repeat measures five years later for 285 college men.[20]

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[18]Clifford P. Froehlick and John G. Darley, Studying Students - Guidance Methods of Individual Analysis. The Geographical Publishing Company, DeKalb, Illinois. 1952. p. 286.

[19]Ibid., p. 288.

[20]C. M. Harsh and H. G. Schrickel, Personality Development and Assessment. Ronald Press Co., New York. 1950. pp. 315-337.

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Moffie investigated the relationship between self-estimated interests and those interests as measured by the Strong Interest Blank. Only one coefficient of correlation (stenographer-secretary and teacher of social sciences) exceeded .50. Moffie believed that the inconsistencies between estimated and measured interests were probably due to lack of maturity of the 80 students with a mean age of 18.7 years which he studied.(21)

In his summary on the likes, dislikes, and vocational interests of men, Berdie stated that the extent to which items are liked on the Interest Blank for men is positively correlated with school achievement and other personality test scores purporting to describe social adjustment and morale. "These correlations are stable but are too small to be of any use in predicting adjustment."(22)

Sarbin and Anderson concluded that the interest patterns of 76 adult men on Strong's blank between 1937 to 1940 indicated that 82 percent of these men who were dissatisfied with their job or their occupation had interest patterns which were not congruent with their modal occupations.(23)

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[21] D. J. Moffie, "The Validity of Self-Estimated Interests." Journal of Applied Psychology. 26:606-13. October, 1942.

[22] Ralph F. Berdie, "Likes, Dislikes, and Vocational Interests." Journal of Applied Psychology. 27:188. February, 1943.

[23] T. R. Sarbin and H. C. Anderson, "A Preliminary Study of the Relation of Measured Interest Patterns and Occupational Dissatisfaction." Educational and Psychological Measurement. 2:23-26. 1942.

Nelson found that by comparison of scores of 72 "more" successful Minnesota teachers with 25 "less" successful Minnesota teachers that the difference in scores was not significant at the five-percent level.(24)

Other studies regarding Strong's inventory have been reviewed in The Third Mental Measurements Yearbook, which contains short reviews of research conducted in the area of measurement.(25) Strong, also, has gone at length to describe and explain the value of his inventories as well as to present pertinent research on the validity of his blanks.(26) His manual on the blank for men gives directions for the use and interpretation of interest scores.(27)

Some study has been made of achievement in college and teaching efficiency. The same is true of student teaching. However, as these studies have been conducted in relationship to teaching ability or performance, as they will be reviewed under studies of pre-teaching characteristics as related to subsequent performance.

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[24]Kenneth G. Nelson, "The Interests of Teachers of Vocational Agriculture as Related to Vocational Satisfaction." Thesis, Ph.D. University of Minnesota. 1952. p. 66.

[25]Oscar K. Buros, Ed., The Third Mental Measurements Yearbook. Rutgers University Press, New Brunswick, New Jersey. 1047 pp.

[26]Edward K. Strong, Jr., Vocational Interests of Men and Women. Stanford University Press, Stanford University, California. 1943. 717 pp.

[27]Edward K. Strong, Jr., Manual for Vocational Interest Blank for Men. Stanford University Press, Stanford University, California. January, 1951. 16 pp.

Studies and Definitions of Teaching Efficiency and Ability and of What Constitutes Teaching Efficiency

Almost all investigators who have studied teaching efficiency have found it necessary to define their interpretations of teaching effectiveness. The need for defining teaching effectiveness was pointed out by Ryans,[28] Barr,[29] Magee,[30] the National Education Association of the United States,[31] and others. For this reason, this section of the review of literature was established to consider definitions and criteria of teaching effectiveness first. Then some attention is to be devoted to the aspects of a good teacher in general. Finally, consideration is to be given to what constitutes the "good" versus the "poor" teacher in the field of vocational agriculture.

The National Education Association group working on measures of teacher competencies, in its report, presented a bibliography of research regarding the subject. The group defined a good

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[28]David G. Ryans, "The Criteria of Teaching Effectiveness." Journal of Educational Research. 42:690-99. May, 1949.

[29]A. S. Barr, "The Evaluation and Prediction of Teaching Efficiency." Journal of Educational Research. 40:717-20. May, 1947.

[30]Robert M. Magee, "Selection of Candidates for Teacher Education." The Journal of Teacher Education. 3:168-172. September, 1952.

[31]National Education Association of the United States, "Measures of Teacher Competences:Report of Special Group D, The Miami Beach Conference, June 24-27, 1953." 1201 Sixteenth Street, Northwest, Washington 6, D.C. October, 1953. 12 pp.

teacher as:

> "- - - one who produces good results in meeting the central, persistent needs of our life. It follows then that the good teacher consistent with these needs, possesses a wisdom born of intelligence and education, and is master of the professional understandings and skills which his responsibilities demand. - - - The good teacher no longer can be simply a skilled classroom practitioner. He must be this and much more. This expanded concept demands that the teacher serve effectively as a counselor and guide to individual students, as an interpreter and mediator of the culture, as a contributing member of the school community, as a liaison between the school and community which supports it, and as a growing member of an important profession."(32)

Assuming that the characterization of a teacher is similar to the definition of a teacher, Barr described the teacher as(33) (1) A director of learning, (2) A friend and counselor of school pupils, (3) A member of a school staff, (4) A member of a group of professional workers, and (5) A member of a community. He further pointed out that the efficient teacher is a product of a chain of events starting with early childhood. He described the prerequisites to teaching efficiency as either fixed or variable determiners. Of the variable factors he said that some are due to native endowment, nutrition, bodily care, and others to education and environment.(34)

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[32] Ibid., p. 4.

[33] Barr, op. cit., p. 717.

[34] Ibid., p. 718.

Ryans stated the necessity of knowing what to judge in teaching effectiveness. As to when teaching is effective, he said:

> "It may be said, then, that teaching is effective to the extent that the teacher is able to provide ways and means that are favorable to the development of understandings, work habits, desirable attitudes, and adequate personal adjustment on the part of the pupils or students."(35)

Regarding the possible criteria of teaching effectiveness, Ryans stated that:

> "There are two general empirical approaches to the criterion problem in teaching. The first is through observation of the teacher, and the second, through observation of the product of the teacher's efforts, the pupils. The direct observation of the teacher culminates in judgments, or ratings, of the teacher's influence on the students. Observation of the product of the teacher, which must take into account the status of the pupils both prior to and following exposure to the teacher, results in indices of pupil change. The possible criteria of teaching effectiveness, then, are (1) ratings of teacher ability and (2) measurements of pupil change." (36)

Barr, likewise, commented on these approaches when he stated:

> "In the second approach to the evaluation of teaching efficiency, attention is focused upon the teacher's performance, ordinarily divorced from results. Currently, however, the trend in evaluating performance is toward the consideration of each teacher and pupil act in relation to educational purposes, educational principles, and the limiting and facilitating aspects of each learning-teaching situation." (37)

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[35] Ryans, op. cit., p. 692.

[36] Loc. cit.

[37] Barr, op. cit., p. 718.

A large number of persons has projected aspects or factors which they believe should be present in an individual if that person is to be a successful teacher. Witty presented several personality traits of effective teachers that were analyzed from 12,000 letters of pupils in grades nine to twelve. In general, the same type descriptive statements were included as those mentioned by Symonds. Some of the principle traits mentioned were: cooperative, democratic attitude, kindliness and consideration for the individual, wide interests, fairness and impartiality, good disposition, and a consistent behavior.(38)

It was implicated by Canfield that administrators want a teacher who knows the intimacies and details of the job. His major thoughts were expressed in the statement that:

> "All that is required of a good teacher is to be patient, have a sense of humor, an even tempered disposition, a full realization of community responsibility, a friendly gregarious attitude, knowledge of his teaching field and above all, a sincere desire to overcome the hazards of the profession - the mires of convention and laziness - getting into a rut!" (39)

Since this study was concerned with performance of teachers of vocational agriculture, attention was given to what constitutes

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[38]Paul Witty, "An Analysis of the Personality Traits of the Effective Teacher." Journal of Educational Research. 40:662-671. May, 1947.

[39]Charles R. Canfield, "A School Administrator's Estimate of a Good Teacher." The Agricultural Education Magazine. 25:221. April, 1953.

the "good" versus the "poor" teacher in this field. Harden presented an extensive list of criteria of success in teaching vocational agriculture. The traits he indicated as desirable for a good teacher of vocational agriculture were:

"1. General academic ability (intelligence)
2. Proper attitude toward rural life (interest in farming)
3. Interest in teaching
4. Farm experience
5. Social proficiency and interest
6. Duration of interest in teaching
7. Emotional stability (balanced personality)
   a. Satisfactory social and economic experience
   b. Satisfying community and family life
8. Physical fitness (physical energy and vitality)
9. Skill in expression." (40)

Floyd characterized the minimum qualifications of a good teacher of vocational agriculture as being:

"1. Farm reared or its equivalent
2. No major physical handicaps
3. Satisfactory attitude (positive sense of humor)
4. Above average in ability and performance of academic assignments and requirements
5. Rank in upper three-fourths of class in agricultural offerings
6. Interested in making a career as a teacher of agriculture
7. Exhibited initiative and was aggressive in work assignments (work related to agricultural practices)
8. Takes suggestions gratefully and catches on with minimum of instruction and assistance
9. Sober in social habits
10. Has satisfactory ability to become adjustable and adaptable to situations
11. Desirous of growing professionally
12. Trustworthy

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[40]Leigh Harden, "A Clinical Technique for the Selection and Guidance of Agricultural Education Trainees." The Agricultural Education Magazine. 15:106. December, 1942.

13. Unlimited energy and desire to get the job done
14. Satisfactorily completed all requirements for graduation in the prescribed course
15. Shows evidence of being willing to work with associates
16. Shows evidence of desiring to render full and worthwhile service to the people he is to help by exemplary teaching and living." (41)

Floyd did not present any research on which his thoughts were based, yet they can be viewed important to the extent that this reflected the viewpoint of a teacher educator in agricultural education.

Perhaps a somewhat broader characterization of a superior versus the inferior teacher has been summarized by the National Standards Committee for Vocational Education in Agriculture. The "superior" teacher was described by:

"1. Graduation from a recognized institution for the training of teachers of vocational agriculture
2. Farm-reared
3. Farm experience as a mature individual over at least 1 calendar year
4. Some managerial experience in farming
5. Technical training before and after graduation coextensive with the important farming enterprises of his community
6. Complete professional training, including participation training and professional improvement activities since graduation." (42)

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[41]Arthur Floyd, "The Good Teacher of Agriculture." The Agricultural Education Magazine. 18:228. June, 1946.

[42]Federal Security Agency, An Evaluation of Local Programs of Vocational Education in Agriculture. Vocational Division Bulletin No. 240, Agricultural Series No. 58. United States Government Printing Office, Washington, D.C. 1949. pp. 52-53.

In characterizing the "very inferior" teacher, the following quotation was made:

> "He was farm-reared, but left the farm before maturity and had no year-round experience on a farm. He had no managerial experience in farming. His technical training was incomplete and he had obtained very little since graduation. Likewise, his professional training was incomplete and further professional training was lacking." (43)

Donovan, in addition to commenting on the study by the National Standards Committee for Vocational Education in Agriculture, pointed out that the personality of a good teacher is especially important in getting along with students, parents, teachers and supervisors.(44)

Angelle indicated that a teacher needs more than technical and professional knowledge to be a success. He said:

> "He must have qualifications which will fit him for leadership in promoting and providing instruction to all the farm people in his community. In order to meet these rules he must be a dynamic individual, capable of meeting changing conditions; he must be dependable, open-minded, resourceful and sincere; he must be healthy and unafraid of hard work." (45)

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[43] Ibid., p. 52.

[44] Harold Donovan, "What Makes a First-rate Teacher?" The Agricultural Education Magazine. 25:223, 227. April, 1953.

[45] Roy P. Angelle, "Necessary Qualifications for a Teacher in Vocational Agriculture." The Agricultural Education Magazine. 25:228. April, 1953.

Studies Involving Problems and Methods of Measuring Teacher Performance

A continuous problem faced by a large number of investigators has been how to measure teacher efficiency or performance. Several techniques have been tried without much success. Some of the difficulties have come from the establishment of criteria of success, from biases of raters and others from numerous inconsistencies of the efficiency of the one rated, as well as the rater.

It was concluded by Powell that: "....no one measure should be taken as adequate evidence on which to base a diagnosis, or on which to determine the outcome of therapy which has been undertaken. It appears that three or more different sources are generally needed to give an adequate picture of one's adjustment."[46] The same conclusions were reported by Sells and Ellis.[47] From this, one would gather that a single rating of personality or performance would be highly questioned. The number of ratings or evaluations to be made seemed, therefore, to be a problem in measuring teacher performance.

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[46] Margaret G. Powell, "Comparisons of Self-Rating, Peer Ratings, and Expert's Rating of Personality Adjustment." Educational and Psychological Measurement. 8:234. Summer, 1948.

[47] S. B. Sells and R. W. Ellis, "Observational Procedures Used in Research; Rating Technics." Review of Educational Research. 21:437. December, 1951.

There are problems in measurement of teacher performance which heretofore have been given practically no consideration. For example, Raths commented that a teacher cannot be appraised well if he is doing what he prefers not to do or is not allowed to do as he thinks is the best way of doing the job. He essentially was saying that there are numerous restraints on teaching and the individual quite likely may be the victim of some restraints. Other dangers pointed out concerning appraisal of teaching efficiency were: (1) misunderstood motives, (2) unattainable standards of efficiency, and (3) making judgments on the basis of inadequate evidence. Raths concluded that: "The data must represent a fair sampling of the teacher's activities: in the classrooms, in extra-curricular activities, in faculty and committee meetings, and in community participation."[48]

Durea and Norman, after studying the interests and attitudes of 140 subjects by weighting and not weighting items, pointed out that there is yet some differences in opinion as to whether weighted or unweighted items are best in differentiating between groups. They were inclined to believe that little was gained by weighting items.[49]

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[48]Louis Raths, "Dangers of Appraising Teaching Efficiency." The School Executive. 67:56. April, 1948.

[49]M. A. Durea and R. D. Norman, "The Significance of Weighted and Unweighted Items in Differentiating Between Groups." The Journal of General Psychology. 38:217-27. April, 1948.

In one of the studies reported by Barr, the principal criterion of teaching efficiency was a composite of measures of pupil growth and achievement. The study was concerned with the determination of changes produced in pupils as a result of teaching, both effective and ineffective teaching. Twenty measures were applied to the teachers to receive ratings on them; most of these measures were found to be standardized instruments which have been published. As the study was in progress only tentative conclusions were drawn. These were concerned primarily with the validity of some of the instruments being used.(50)

Gotham reported on problems encountered, as well as techniques used, in a study of personality and teaching efficiency. His criteria of teaching efficiency were: (1) criterion of pupil change in information, interests, attitudes, beliefs and abilities, (2) a battery of 13 tests administered to each teacher, (3) a composite of teacher ratings (five rating scales were employed for rating each teacher), and (4) a composite of the three foregoing criteria. Each teacher was rated by the superintendent, supervisor, and the field research worker. It was concluded that:

> "One of the significant findings of this investigation is the lack of agreement found among the several criteria of teaching efficiency. The correlation for these were as follows:
> (a) Between pupil change and tests of qualities commonly associated with teaching success (.13)

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[50] A. S. Barr, "The Wisconsin Study of Teaching Ability." Journal of Educational Research. 33:671-84. May, 1940.

(b) Between pupil change and personality tests and scales (.27)
(c) Between the measures of personality and qualities commonly associated with teaching efficiency (.32)
(d) Between a composite of the Michigan and Torgerson Rating Scales and Pupil change (.40)

While the latter coefficients of correlation are large enough to be statistically significant, the criterion of pupil change apparently measures something different from that measured by teacher ratings and tests of qualities commonly associated with teaching efficiency." (51)

Gardner discussed recent work on attitude scales and said that information giving just rank order among individuals failed to reveal the amount of growth of an individual in a particular trait. In order to provide comparisons of differences in performance of individuals in a particular trait, he suggested the use of interval scales, having equal units throughout the range of the scale.(52)

One method of determining the elements of merit contributing to success in teaching used by Shannon was that of personal interviews. He held personal interviews with 164 experienced and reputable public-school supervisors. Data were collected on 430 of the best teachers and 352 of the worst teachers who had worked under the

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[51] R. E. Gotham, "Personality and Teaching Efficiency." Journal of Experimental Education. 14:165. December, 1945.

[52] E. F. Gardner, "Comments on Selected Scaling Techniques With a Description of a New Type of Scale." Journal of Clinical Psychology. 6:38-43. January, 1950.

supervisors. "What constituted a successful teacher, or an unsuccessful one, was left for the individual interviewees to decide. Doubtlessly there was a wide variation in their standards."[53] He further stated that: "To a considerable extent supervisors rate teachers on the basis of general impression, unable to cite instances or illustrations supporting their convictions. This does not necessarily mean, however, that their convictions are erroneous."[54] He indicated that elements of failure in weak teachers were more distinguishable than the elements of success in strong teachers.[55]

A new approach to evaluating teacher effectiveness was reported by Hedlund. He said that 24 colleges and universities in New York were cooperating in the study. Some 225 scores were gathered on 1,483 applicants preparing to become secondary school teachers. A group of 79 beginning teachers were studied intensively by students, supervisors and expert observers. Each of these groups indicated the effectiveness of the teacher and described teacher behaviors which were considered ineffective. From these over-all ratings, these teachers were divided into two criterion groups:

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[53] John R. Shannon, "Elements of Excellence in Teaching." Educational Administration and Supervision. 27:169. March, 1941.

[54] Ibid., p. 176.

[55] Loc. cit.

effective teachers and ineffective teachers. Of 59 teachers in these two groups, 4600 descriptions of effective and ineffective behaviors were reported. These descriptions were then tabulated under 63 specific behavior categories. Forty-six of these 63 categories differentiated between effective and ineffective teachers. On the basis of these 46 categories, three instruments for evaluating beginning teachers were constructed. After profile analysis and study of teaching effectiveness, as measured, it has been found that the 43 items may have possible use in predicting teaching effectiveness.(56)

The technique used by McLaughlin was the case-method procedure which considers an individual case in terms of its own settings, environments, and conditions. A total of 98 "successful" and 16 "non-successful" teachers was studied. Each teacher had taught at least two years. "Successful" teachers were those receiving at least two reports from supervisory officials stating that they were superior in ability on the whole, with a third report indicating very good or excellent ability. "Non-successful" teachers were those on whom at least two supervisory reports had indicated as doing unsatisfactory work. McLaughlin personally interviewed all subjects and secured data from nine different sources. Each case study was organized around the following major areas: (1) Family,

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[56]Paul A. Medlund, "Cooperative Study to Predict Effectiveness in Secondary School Teaching." Journal of Teacher Education. 4:230-234. September, 1953.

(2) Play and Activity interests, (3) Reading interests, (4) Social interests, (5) Religious interests, (6) Education, Training, Scholastic achievements, (7) Vocational Data, (8) Personal and Professional Traits, and (9) Summary. He prepared profile charts showing the differences found between successful and non-successful teachers.[57] The organization, as well as the techniques used in the study, of McLaughlin's dissertation was found to be different from others reviewed.

Cook and Leeds, in attempting to measure personality factors related to success in teaching, established two criterion groups of teachers. An attempt was made to find factors which would discriminate between the two groups, one having desired personality characteristics to a high degree and the other to a low degree. Principals of schools designated teachers that pupils liked very much and those disliked. A total of 200 teachers was studied. A teacher-pupil inventory was constructed to determine the teacher's attitudes towards pupils. A brief "Principals' Rating Scale" was also constructed for getting data on teachers for the traits: disciplinary ability, personnel versus subject-matter point of view, attitude toward children, understanding of pupil behavior problems, personality adjustment, and attitude of pupils toward the teacher. Regarding relationship of ratings and teaching personality, Cook

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[57] J. O. McLaughlin, "A Case Study of Teachers Judged Successful and Non-Successful." Thesis, Ed.D. Leland Stanford Junior University, Stanford, California. 1930. 215 pp.

and I

and Ieeds stated:

> "Pupils' ratings of teachers at the intermediate-grade levels are reliable and valid. There is a significant relationship between their ratings and those of the principal and of an expert. Pupils' ratings of teachers correlate with principals' ratings, .39, and with an experts' ratings, .33. The experts' and the principals' ratings correlate .48. The 'teaching personality' can be measured with as high a validity as an academic aptitude, the correlation with three criteria combined being .60." (58)

The method used by Ullman to determine teaching success was that of securing ratings of teaching ability from the teacher's superintendent, principal, or supervisor. "An adaptation of the Michigan Education Association 'Teacher Rating Card' was used."(59)

It was reported by Rogers that over one-half of the teachers studied by The Educational Research Service of the National Educational Association were given efficiency ratings. The typical way of appraising efficiency was by using a comparative scale with several levels of efficiency on which the teacher was checked.(60)

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[58] W. W. Cook and C. H. Ieeds, "Measuring The Teaching Personality." Educational and Psychological Measurement. 7:409. 1947.

[59] Roy Roland Ullman, "The Prognostic Value of Certain Factors Related to Teaching Success." Thesis, Ph.D. University of Michigan. The A. L. Garber Co., Ashland, Ohio. 1931. p. 28.

[60] Virgil M. Rogers, "Appraising Teaching Efficiency for the Betterment of Schools." The School Executive. 67:54. April, 1948.

Tansil studied cumulative records of students at the State Teachers College at Towson, Maryland as a technique of predicting success in teaching by comparing the ratings of graduates based on records with supervisors' ratings of these graduates. The correlation between the two ratings was .27. It was found that there was higher agreement between the prediction of teaching success based on records and effectiveness in teaching when recent graduates were studied within their own group and not compared with other teachers in service.[61]

With a group of teachers of vocational agriculture, Seymour developed a rating sheet for evaluating work of teachers of agriculture. Each activity selected for rating was assigned a weight value with about half of the items based on in-school work with all-day students and the other half on out-of-school groups. The activities on which teachers were evaluated were based on district supervisor's observation and reports from the teacher on monthly and annual report forms. The nature of activities evaluated for all-day classes included: (1) housekeeping, (2) condition and completeness of files, (3) accumulation of days reports were late in reaching supervisor's office, (4) average number productive enterprises planned per all-day student, (5) average number of productive enterprises completed per all-day student, (6) percent of all productive enterprises of all-day students completed, (7) number of

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[61]Rebecca Catherine Tansil, "The Contributions of Cumulative Personnel Records to a Teacher-Education Program." Teachers College Record. 41:159-160. November, 1939.

Future Farmer meetings held first 10 months of fiscal year, and (8) number of visits to projects of all-day students for first 10 months of fiscal year. Some of the activities evaluated in out-of-school programs were: (1) number of evening-school meetings held first 10 months of fiscal year, (2) number attending evening-school meetings first 10 months of fiscal year, (3) number visits to evening-school men first 10 months of fiscal year, (4) number services rendered to farmers first 10 months of fiscal year, (5) total miles traveled on official duties first 10 months of fiscal year, and (6) outstanding services rendered to the community.[62]

Thirty teacher measures were studied for statistical validity by Rolfe. He said: "Rating scales when used by experienced and competent supervisors for the purpose of evaluating teacher efficiency give a positive correlation ($r = .36$ to $r = .43$)."[63]

Brown used a different criterion of teaching success than other investigators reviewed. He used the rating of a department as the rating of the instructor in charge of each particular department. The rating score cards contained 16 sections, with a total

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[62] O. J. Seymour, "Evaluating the Work of Teachers of Agriculture." The Agricultural Education Magazine. 18:15. July, 1945.

[63] J. F. Rolfe, "The Measurement of Teaching Ability." Journal of Experimental Education. 14:73. September, 1945.

possible score of 102. Enrollment had the highest possible weight of any of the 16 sections as 22 possible points were allowed. Brown administered "The Personality Inventory" by Robert G. Bernreuter and the "Vocational Interest Blank for Men" by Edward K. Strong, Jr. to teachers in the field and compared scores on them to the scores given the teachers through rating of their departments.(64)

A rating scale was also developed by Anderson. The scale was composed of 30 selected traits which he said were predictive of a man's worth as a teacher of vocational agriculture. Each of the 30 traits was accompanied by three descriptions varying in degree of attainment of the trait. The person marking the scale had only to check the degree of attainment of each trait.(65)

Studies Regarding General Nature of Relationships of Performance to Pre-teaching Characteristics

Several studies have been concerned directly or indirectly with the analyses of relationships of pre-teaching traits to per-

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64James Frank Brown, "The Relationship of Personality Traits and Vocational Interests to Success in Teaching Vocational Agriculture." Thesis, M.S. 1940, The Virginia Polytechnic Institute. Blacksburg, Virginia. 88 pp.

65C. S. Anderson, "A Rating Scale to Determine a Man's Worth as a Teacher of Vocational Agriculture." The Agricultural Education Magazine. 10:234-5. June, 1938.

formance either in student teaching or teaching on the job. Such studies were reviewed and reported here.

Ullman studied the relationship of 11 items of "personal equipment and preparation" to final teaching success. Such items included general intelligence, knowledge of principles of teaching, interest in teaching, academic marks, professional marks, major subject marks and practice teaching success. Of a group of 47 prospective teachers studied, Ullman found that: (1) teaching interests correlated .20 with practice teaching, (2) teaching interests correlated -.05 with teaching success, (3) academic marks correlated .33 with teaching success, (4) professional marks correlated .40 with teaching success, (5) major subject marks correlated .28 with teaching success, and (6) practice teaching correlated .41 with teaching success as measured in the study.[66]

After Ullman had formulated regression equations for predicting teaching success on the basis of 11 items studied, he presented the relative order of the 11 variables in importance for purposes of prediction as follows: (1) practice teaching, (2) professional marks, (3) academic marks, (4) major subject marks, (5) socio-economic status, (6) social intelligence test scores, (7) Brown psychological test scores, (8) Odell test scores, (9) self-ratings, (10) Weber test scores, and (11) teaching interests.[67]

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[66] Ullman, op. cit., p. 54.

[67] Ibid., p. 67.

Ullman's study is an example of the difficulty encountered in predicting teaching success. His findings were limited somewhat by the small number of individuals studied, as well as by the subjective technique of ratings on teaching success.

Nye made a study on the relationship of certain factors to county agent success, in which 148 county agents were studied. He was unable to complete the study in entirety due to lack of funds. His assumptions were that the basic characteristics for success in extension work were found prior to graduation from college and that these characteristics were measurable as well as the agent's effectiveness.[68] Moderate correlations were found between unweighted scores on background and training, vocational interest, attitude, and personality and agent effectiveness.[69] Other work would be necessary to explain many of the unexplained variations of this study.

The major purpose of Leavitt's study, involving records of 266 elementary education majors at Northwestern University, was to discover relationships between personnel data and prediction of success of student teachers. In this study, ratings were made by use of a rating scale. Even though little statistical data were supplied, Leavitt did present the following findings regarding the relationship of personnel data to student-teaching success:

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[68] Nye, op. cit., p. 4.

[69] Ibid., pp. 29, 30.

"1. Regardless of their amount of participation in extracurricular activities, students stood an equal chance of making an 'A' or a 'C' in student teaching. ——
2. The data compiled in this investigation showed no relationship between travel experiences and success in student teaching. -----
3. Students with the greatest amount of work experience received slightly higher marks in student teaching than did those with little or no work experience. This difference of about 5 to 10 per cent was not large enough to be considered significant.
4. Twice as many students having extensive experiences with children were considered to belong in the two highest groups in student teaching as were those considered to belong in the two lowest groups. ------
5. A positive relationship was found between the interview rating and student teaching success. ------
6. An examination of the ages---indicated that, with the exception of the students receiving 'C' in student teaching, the percentage of students of all ages receiving the same letter mark in student teaching was proportionally the same. However, the students under 21 years of age were considered more successful in student teaching than those students over 21 years old.
7. -----In general, students with good grade averages were no more or no less successful in student teaching than were those who received poor grades.
8. Students completing four or more methods courses prior to student teaching did not receive better marks in student teaching than did those who had taken only one or two methods courses.
9. A greater number of students receiving the highest marks in methods courses received the highest marks in student teaching than received the lowest marks in student teaching.——
10. Most of the students who received high marks in speech courses received high marks in student teaching. -------

11. It was definitely noticeable that students who ranked about the 60 percentile on The American Council on Education Psychological Examination were more successful in student teaching than were those who ranked below the 60 percentile.." (70)

Leavitt concluded that success in student teaching could not be accurately predicted on the basis of any items or combinations of items as studied.

Whereas Leavitt studied success in student teaching, Shannon studied teachers who had graduated from college and who had continued in the field of education. All subjects studied had taught for at least five years. The most successful graduates of the college in education between 1898 to 1934 were selected first, then the teaching failures and finally the average teachers. Teaching failures were graduates who were unable to obtain and hold educational positions. It was discovered that successful teachers were noticeably ahead of average teachers and distinctly ahead of the failing group in scholarship. The successful teachers were found to be superior in intelligence when compared to teaching failures. Successful teachers had participated in more extra curriculum activities than teaching failures. All of these findings mentioned were statistically significant.(71)

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[70]Jerome Edward Leavitt, "Personnel Data and Prediction of Success of Student Teachers." The Journal of Teacher Education. 4:195-6. September, 1953. (The word "about" in item No. 11 is the one used by the author, but the investigator believes that it should read "above.")

[71]John R. Shannon, "A Comparison of Highly Successful Teachers, Failing Teachers, and Average Teachers at the Time of Their Graduation from Indiana State Teachers College." Educational Administration and Supervision. 26:43-51. January, 1940.

It was pointed out by Brookover that the learning process entails a social process. With this in mind, he studied the relationship of social factors to teaching efficiency. His criterion of teaching efficiency was that of mean gains in pupil information in history. He also obtained administrators' and pupils' subjective ratings of the teachers' ability. Some of the conclusions reached were: (1) there was no significant relationship between appearance and effectiveness among teachers less than 28 years of age, (2) age and marital status were related to teaching ability, with married men superior to single men and the age group 27 to 38 years being most effective in mean pupil gains in information, (3) teachers who lived in the neighborhood of the school were superior to those who did not, (4) extracurricular activities of the teacher in the community were not associated with teaching ability, and (5) that employers' ratings of teachers were not related to gains in information by pupils.[72]

Two-hundred pupils were studied by La Duke, who used three teacher rating scales for the purpose of getting supervisory ratings of teachers. He found that:

> "Intelligence of teachers as measured by the total score and part scores on The American Council Psychological Examination is significantly related to teaching efficiency as measured here (.61)-----The teacher's attitude toward her profession or toward her fellow teachers as herein measured showed little

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[72]Wilbur B. Brookover, "The Relation of Social Factors to Teaching Ability." Journal of Experimental Education. 13:191-205. June, 1945.

relationship to her efficiency (.16)-----
Ratings of teaching efficiency by superintendents and supervising teachers do not agree with the criterion of pupil gain." (73)

In his investigation of the relationship between selected teacher traits and desirable changes produced by teachers in their pupils, Rostker used three rating scales for the purpose of getting supervisory ratings of the 28 teachers included in the study. He found that intelligence of teachers was more closely associated to teaching ability than any other factor considered. He also discovered that the relationship of scores on the supervisory rating scales used in the study and the criteria of teaching ability was low, and statistically insignificant.(74)

In an extensive review of investigations regarding the measurement and prediction of teaching efficiency, Barr presented a summary of 209 scales used in rating teachers. He reported that Mead and Holley,(75) in studying 40 student teachers, found that practice teaching success correlated .24 with general scholarship, .19 with scholarship in the trainee's major, and .57 with general

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[73] C. V. La Duke, "The Measurement of Teaching Ability." Journal of Experimental Education. 14:100. September, 1945.

[74] Leon E. Rostker, "The Measurement and Prediction of Teaching Ability." School and Society. 51:30-32.

[75] A. R. Mead and C. E. Holley, "Forecasting Success in Practice Teaching." Journal of Educational Psychology. 7:495-97. October, 1916.

methods course marks. Barr also reported that Seagrove[76] discovered a correlation of .08 between the Strong Vocational Interest Blank: M-F and teaching success as derived from ratings by administrators.[77]

Barr also reported that Stuit[78] compared the scholastic grades of 100 teachers rated by superintendents as most successful and 100 rated as least successful. Stuit found that only 11 percent of the successful teachers had grades below 80 and 19 percent were above 90, whereas, one-third of the least successful teachers were below 80 and 13 percent above 90 on scholarship. Scholastic success correlated .31 to success in teaching.[79] Barr commented that other investigators had found some association between practice teaching marks and success in the field.[80]

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[76] M. V. Seagrove, "Prediction of In-Service Success in Teaching." Journal of Educational Research. 39:658-63. May, 1946.

[77] A. S. Barr, "The Measurement and Prediction of Teaching Efficiency: A Summary of Investigations." Journal of Experimental Education. 16:229, 242. June, 1948.

[78] Dewey B. Stuit, "Scholarship as a Factor in Teaching Success." School and Society. 46:382-84. September 18, 1937.

[79] Ibid., p. 187.

[80] A. S. Barr, "Recruitment for Teacher Training and Prediction of Teaching Success." Review of Educational Research. 10:185-90. June, 1940.

Pierson and Stone studied the interest patterns of county agricultural agents and job success. The assumption was made that with high degree of correlation between measured interest patterns and job success it would be possible to predict performance of prospective county agents with greater accuracy. Strong's Vocational Interest Blank was used. It was found that agents, in comparison to Strong's criteria groups, were highest in "technical" occupations of farmer and vocational agriculture teacher and "social welfare" occupations. The agents were rated by a panel of extension administrators as to their over-all effectiveness on the job. It was found that "more effective" agents had higher social welfare types of occupational interests and lower technical interest (specific occupations of farming) than those who were not rated as high. The "more satisfied" group had a slightly higher interest in teaching than the "less satisfied" agents. To test if actual prediction could occur, coded Strong scales were reviewed on the basis of associations found between the groups classified by the panel and were classed as potentially having good performance and then these predictions were compared to the actual rating assigned by the panel of administrators. Test by the Chi square of this attempted prediction method based on interest patterns of agents as measured by the Strong test was significantly greater than chance in each case.(81) (82)

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[81] Rowland R. Pierson and John T. Stone, (Mimeographed article). "The Interest Patterns of County Agricultural Agents and 4-H Club Agents - A Predictor of Success." Michigan State College, East Lansing.

Some of the important conclusions of McLaughlin's study appeared worthy of inclusion. He said:

> "Superior and inferior teachers both may possess many specific abilities and desirable qualities, or teachers of either class may or may not possess the same abilities and qualities. Attempts to stipulate the qualifications of teaching in such terms as: scholarship grades, ability to discipline, church attendance, personal dress, etc., cannot be successful because there are so many exceptions that the criteria will lack validity. This study has shown that qualifications for teaching are largely functional attitudes and abilities; and a teacher, who lacks any one of certain functional abilities, will fail in the work." (83)

He further stated that:

> "Of 33 non-successful teachers included in this study, the outstanding cause of failure, as cited by supervisors, in 70% of the cases was an inability to make necessary social adjustments within the school, with the parents, or in the community." (84)

McLaughlin submitted a basis for selecting and rating teachers on the premise that certain functional attitudes and abilities are

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[82] Rowland R. Pierson, "Vocational Interests of Agricultural Extension Workers as Related to Selected Aspects of Work Adjustment." Ph.D., Thesis. Michigan State College, East Lansing, Michigan. 1951. pp. 229-231.

[83] McLaughlin, op. cit., p. 1.

[84] Ibid., p. 3.

necessary for a person to become a successful teacher. His entire basis for selecting and rating teachers seemed highly subjective and apparently based purely upon implications from the cases studied.[85]

Nelson's findings that less successful teachers had a wider variability in teacher satisfaction scores and that the scale did not differentiate between "more" and "less" successful groups of teachers of vocational agriculture in mean scores was consistent with the results of Ullman and Phillips who also found that teacher ratings did not correlate with interest inventory scores.[86] Nelson's study was concerned with a teaching satisfaction scale developed for Strong's "Vocational Interest Blank for Men".

It was noted by Clark that teachers who remained in the field had more credits in professional courses and technical agriculture courses than teachers who left the field. Regarding success in student teaching as associated with leaving or remaining in the field of vocational agriculture, he summarized his findings as follows:

> "Student teaching marks for teachers who left ranged lower than for those who remained. Of the teachers who left, 37.2 per cent received student teaching marks of 'AA' or

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[85] Loc. cit.

[86] Nelson, op. cit., p. 66.

> 'AB', while 46.2 per cent of those who remained received such marks. Also of those who left, 17.9 per cent received student teaching marks of 'BC' or 'CC' as compared with 11.5 per cent for those who remained. None of the teachers who remained received student teaching marks as low as 'CC', while 12.8 per cent of those who left received 'CC' in student teaching." (87)

A study to determine criteria for selection of prospective students in agricultural education was conducted by Floyd. He secured evaluations from state supervisors and head teacher educators in agricultural education of factors contributing to success in teaching vocational agriculture. It was found that "good character" ranked as the most important personal factor contributing to success. "Varied farm experience" was the most important trait listed for farm experience. Data were secured from 362 successful teachers of vocational agriculture from a selected group of 502 submitted by supervisors and head teacher educators from 44 states. Floyd found a close relationship between a rather high grade-point rank in high school achievement and later success in teaching vocational agriculture. He also discovered a majority of successful teachers had several years of farm experience before going to college. The range of years of farm experience was found to one to 38 years. Approximately 60 percent of the 362 teachers had been active in one or more organizations interested in agricultural development during

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[87] Clark, op. cit., p. 133.

their elementary and high school training. There were 67, or 18.57 percent, active in 4-H Clubs; 22.82 percent active in Boy Scouts; 4.97 percent active in the Future Farmers of America; 29.83 percent active in the high-school judging team; and 41.71 percent were not members of any organization during high school.[88] He indicated his belief that a student who considers teaching vocational agriculture at an early age should probably be considered a more favorable student than one who decides at a later period in life.

While Floyd's study was contributive to the growing volume of information regarding pre-teaching records and success in teaching, he made little use of available statistical techniques in the analyses of data collected. However, in his review of studies, he presented a very informative and concise summary of studies on the prediction of teaching success.

A study conducted by Efferson was closely related to Floyd's and was apparently fashioned closely after it. His findings and conclusions were very similar also. He used supervisory ratings of 118 Louisiana teachers in his analysis of pre-teaching records and activities. He found that supervisory ratings of teachers who had been members of the Future Farmers of America were higher than rat-

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[88]John C. Floyd, "Pre-Training Records and Activities of Successful Teachers of Vocational Agriculture." Thesis, Ed.D. University of Missouri, Columbia, Missouri. 1939. p. 90.

ings of teachers who had not been members.[89]

The importance given to pre-teaching traits in recommending beginning instructors of vocational agriculture by teacher educators was reported by Knight.[90] He found that teacher educators placed most emphasis on "practice teaching rating" in recommending a new teacher to a prospective employer. Second in importance was "character"; and third in importance was "attitude towards teaching."[91] His study was concerned with policies and procedures of placement of teachers of vocational agriculture and was based upon the responses of 252 superintendents from Missouri, Illinois, Iowa, Kansas and Nebraska. The purpose of the review of this study was based on the premise that if the analogy could be established that information desired by superintendents employing teachers should be similar to information collected before and during the training of teachers, it would be wise to discover the nature of such information used in placement activities. It was discovered that superintendents desired an extensive list of information concerning

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[89]Carlos Arthur Efferson, "Pre-Training Records and Activities of Teachers of Vocational Agriculture in Louisiana as Related to Teaching Success." Thesis, M.S. Louisiana State University, Baton Rouge, Louisiana. 1940. 84 pp.

[90]E. B. Knight, "The Placement of Teachers of Vocational Agriculture." Thesis, Ed.D. University of Missouri, Columbia, Missouri. 1938. 212 pp.

[91]Ibid., p. 65.

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prospective employees. In rank order, the 10 most desired items were: (1) character, (2) personality, (3) attitude towards teaching, (4) attitude towards rural life, (5) list of college credits, (6) opinion of teacher trainers, (7) social qualities, (8) candidate's farm experience, (9) record of college grades, and (10) opinions of practice teachers.[92]

A study by Coombs was primarily concerned with a follow-up evaluation of the directed teaching program as conducted by the agricultural education department at Cornell. The evaluation of performance of first-year teachers of vocational agriculture was accomplished by the use of an instrument constructed in a series of workshops held in the North Atlantic Region in 1947-49. Coombs found that only 30 of 211 recommended training experiences for student teachers have a close relationship to first year teaching performance.[93] There was a moderate relationship between performance and 100 training experiences. The only analysis made of data accumulated was simple summaries of numbers receiving different degrees of training and performance. While the data may not have been easily adaptive to statistical study, the absence

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[92] Ibid., p. 145.

[93] Joseph Glenn Coombs, "An Analysis of the Relationship Between Directed Experiences Obtained in Training and First Year Teaching Performance For Teachers of Vocational Agriculture and an Examination of the Procedure Used." Thesis, Ph.D. Cornell University, New York. 1951. p. 341.

of statistical analyses constituted a weakness to the study. The validity of conclusions might be questioned also since the findings were based upon only 27 teachers.

Anderson compiled records of 176 teachers of vocational agriculture who had graduated from the Pennsylvania State College from 1933 to 1942. He used the length of teaching experience as one measure of a teacher's success. He also commented that more than one year is required for a teacher to become established in his work. It was found that 48 percent of the teachers had studied vocational agriculture in high school for an average of 2.6 years. Data also revealed that 30.3 percent of the teachers had been members of the Future Farmers of America while attending high school. Anderson stated that there was evidence that farm experience was closely associated not only with choosing to become a teacher of vocational agriculture, but with success and performance when measured in length of teaching experience.(94)

The need for reliable ways of predicting teaching success and the difficulties encountered were brought out by Sutherland.(95)

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[94]C. S. Anderson, "Pre-employment Records and Activities of Teachers of Vocational Agriculture." Bulletin 484. The Pennsylvania State College, School of Agriculture, Agricultural Experiment Station, State College, Pennsylvania. November, 1946. p. 10.

[95]S. S. Sutherland, "Can We Predict Teaching Success?" The Agricultural Education Magazine. 10:35,38. August, 1937.

He presented some interesting information regarding the study of 31 vocational agriculture teachers in California. Each of these teachers had been trained under the cadet system and had been teaching from one to four years. The state and regional supervisors rated four of this number as "outstanding" and 11 as "above average." The supervisors used a rating scale in evaluating these teachers - the same scale used for the purpose of pro-rating reimbursement. Eight of the 31 teachers were discovered to have more farm experience than the others. In regard to the success of these eight teachers, Sutherland stated:

> "Now, before we give you the results of our findings, would you expect to find your successful teachers in this group? Can we predict success on the basis of farm experience? The answer should be 'yes' but our results say 'no.'
>
> Only three of these eight developed into above average teachers, while twice that many - six of the eight - with the poorest farm experience records, have turned out to be superior teachers. In addition to this, two of the most successful teachers in this better-than-average group were not farm reared and had barely the minimum farm experience required of teacher-training candidates." (96)

An attempt then was made to determine if a good scholastic record was valuable in determining success in teaching vocational agriculture. Sutherland reported:

> "From the transcripts of these 31 teachers, we determined their grade point average in their upper division work - courses taken during their

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96 Ibid., p. 35.

> junior and senior years in college. We allowed three points for each 'A' grade; two points for each 'B' grade; one point for each 'C' grade; no points for each 'D' grade, etc., and by dividing the number of points earned by the number of credits completed, we obtained grade point averages for each. From our analysis, we found these facts:
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> 1. Eight of the teachers were in the 'honors' group with grade point averages from 2.00 to 2.72. Six of these eight were above average teachers.
> 2. Seven just 'got by' with averages from 1.0 to 1.4. Three of these were above average teachers.
> 3. The grade point average for the 15 superior teachers was 1.86; for the other 16 teachers 1.57." (97)

Sutherland gave some attention to the study of college extra-curricular activities participated in by these 31 teachers. His conclusion was that superior teachers generally participate in more extra-curricular activities than do average or poor teachers. Regarding this, he said:

> "The data presented are too meager to even suggest a final conclusion. However, the facts presented point in the direction that a student's record in extra-curricular activities is the most significant factor we have available on which to predict his success as a teacher." (98)

Summary of Review of Literature and Related Materials

1. Several investigators have studied the reliability and validity of The American Council on Education Psychological Examina-

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[97] Loc. cit.

[98] Ibid., p. 38.

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tion. The reliability of this examination has proved to be consistently high.

2. Considerable investigation has been conducted on the "Vocational Interest Blank for Men" by E. K. Strong, Jr. The reliability of the instrument was found to be relatively high. Self-estimated interests correlated very low to measured interests. Some work has been done on testing the instrument as a predicting device between successful and less successful teachers and county agricultural agents.

3. Several definitions of a good teacher have been proposed. The consensus was that a teacher is no longer just a skilled classroom practitioner, but also a director of learning, counselor, guide, contributing member of a school community, a provider of favorable ways and means to development of proper understandings, attitudes, et cetera.

4. Practically all investigators recognized two possible criteria of teaching effectiveness, ability, or performance. One of these was evaluation of the teacher. The other criterion was observation and evaluation of the product of the teacher - the pupil, regarding the gains in student information or changes in certain aspects of personality or understandings. A majority of investigators used the former criterion in evaluating teacher effectiveness.

5. Several lists of desirable personality traits of a good teacher were presented. Some of the traits were: being patient,

having the knowledge of subject matter field, friendly, et cetera.

6. Some attention was devoted to what constituted the "good" versus the "poor" teacher of vocational agriculture. It was generally agreed that teachers of vocational agriculture should have: good character, adequate farm background and experiences; good attitude toward rural life, technical and professional training and graduation from a recognized institution for training teachers of vocational agriculture, emotional stability, interest in teaching, average to better ability, social adaptability and dependability, and be a hard worker.

7. There have been numerous problems encountered in the measurement and evaluation of teaching performance. Some of the most frequent problems noted were: (a) the question of the number of ratings or other evaluations to be made on each individual teacher, (b) what criteria to use and standards of efficiency for comparison, (c) amount of observation necessary for valid ratings, (d) whether weighted or unweighted items were to be used - it was found that little was gained by weighting items, (e) difficulty in measuring personality and social influence in teaching, (f) lack of agreement among several criteria of teaching efficiency, (g) pupil change and teacher ratings, as two possible criteria, seemed to measure something different, and (h) questionable reliabilities and validities of ratings.

8. It was found that several methods have been used to evaluate teacher performance. These methods included the following (a) pupil growth and achievement as indicated by scores on tests and pupil observation, (b) use of standardized instruments for ratings, including interval scales, checklists and comparative scales with several levels of efficiency, (c) personal interviews, (d) case-study procedure, (e) opinions of supervisors, school administrators, teacher educators, and others, (f) cooperative studies among colleges, (g) pupil evaluation of teachers, (h) study of criterion groups of teachers (successful and non-successful group), and (i) ratings of departments as the rating of the teacher directing the department.

9. Studies of relationships of pre-teaching characteristics to performance in student teaching and teaching in the field have resulted in varied relationships. It was noted that superior and inferior teachers may or may not possess some of the same abilities and qualities. One study indicated a large percentage of teaching failures resulted from inability to make social adjustments.

10. Low to insignificant correlations were found in one study between teaching interest and practice teaching and teaching success.

11. One investigator found that academic marks in general were very low in relationship to success in teaching. There was rather consistent agreement that marks in methods courses were related to student teaching. It was found that teachers remaining

in the field had received higher student-teaching marks than teachers who had left the field. One study reported a positive relationship between interview ratings and student-teaching success.

12. There was some agreement between investigators that intelligence of teachers was related to teaching ability. One investigator reported that successful teachers were ahead of a failing group in scholarship and intelligence.

13. One investigator reported moderate correlations between background and training, vocational interests and attitudes and county agricultural agents' effectiveness. Another investigator reported, however, that vocational interests were insignificantly related to teaching success. One investigator found wider variability in teacher satisfaction scores for less successful teachers than for successful ones and that teacher ratings did not correlate with interest inventory scores.

14. Successful teachers of agriculture more often belonged to farm organizations during their youth than did non-successful teachers. Successful teachers also had more often participated in extra-curricular activities in high school and college than non-successful teachers. One writer stated that farm experience was associated to success in teaching; whereas, another reported that teaching success could not be predicted on the basis of farm experience. It was generally agreed that more than one year was required

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15. One investigator reported that very few recommended training experiences of prospective teachers of vocational agriculture had any close relationship to first year performance on the job.

16. Practically all investigators were found to be in agreement on the fact that prediction of teaching success on factors studied to date is yet unaccomplished.

CHAPTER III

PLANNING AND CONDUCTING THE STUDY

In this chapter the procedures followed in determining how teacher performance would be evaluated are described in detail. The methods of developing the performance rating scale with some of the pertinent findings which had implications for the remainder of the study are also presented. Finally, the procedures used in conducting the study proper are presented with comments regarding scoring of rating forms and selecting teachers to be included in the study.

Determining Methods of Evaluating Teacher Performance

As previously stated, one phase of this study was concerned with the problem of evaluating teacher performance. Any method to be satisfactory should be as objective as possible. In evaluating performance of teachers of vocational agriculture, specific area traits should be analyzed and evaluated for their relative importance. A tentative outline of the problem with the proposed procedure for evaluating teacher performance was presented to the guidance committee. The guidance committee approved the general methods involved and raised pertinent questions regarding the

evaluation of the scope and quality of performance. After deliberation, a simple checklist was prepared similar to the one by Nye.(1) This checklist was presented at a regular weekly staff meeting of the Agricultural Education Staff at Michigan State College for criticism. As several important considerations arose during the discussion, it was decided that a more comprehensive instrument was needed to measure teacher performance.

Literature and related materials were studied to decide how to rate teachers. Several self-evaluative guides and other instruments were studied in arriving at the method used in this study. It was discovered that Montgomery,(2) in conducting a study on in-service education, had prepared a problem checklist which contained numerous ideas important in evaluation of teacher performance. Nye(3) had prepared an inventory to be used by Missouri County Agents which also contributed to the background of information. One self-evaluative instrument, which had been prepared specifically for teachers of vocational agriculture, was studied to

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[1]Ivan Nye, The Relationship of Certain Factors to County Agent Success. Research Bulletin 498. University of Missouri, Columbia, Missouri. June, 1952. pp. 41-2.

[2]R. W. Montgomery, "Check List of Professional Problems for Teachers of Vocational Agriculture." Alabama Polytechnic Institute, Auburn, Alabama. 1952. 12 pp. (Mimeographed).

[3]Ivan Nye, "The Missouri County Agent Inventory." University of Missouri, Columbia, Missouri. 1952. 15 pp.

determine traits that were concerned primarily with performance.[4] It was decided that any evaluation of teachers would be concerned primarily with traits of performance rather than with personality factors coupled with performance, since personality in itself was deemed to be an abstraction which was too intangible for primary consideration in this study.

Other important criteria of success of vocational programs and of teachers of agriculture were discovered in bulletins prepared by the United States Office of Education. The first of these bulletins was based upon evaluative criteria prepared by the National Standards Committee for Vocational Education in Agriculture.[5] The second bulletin contained scales on which criteria were developed and afforded numerous items pertaining to the study of teacher performance directly and indirectly.[6] Other sources of ideas were discussed in Chapter II in the review of literature.

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[4]"Guide for Self-Rating for Use by Teachers of Vocational Agriculture." Department of Education, Michigan State College and The State Board of Control for Vocational Education, Lansing, Michigan. 4 pp. (No date).

[5]Federal Security Agency, U. S. Office of Education, An Evaluation of 400 Local Programs of Vocational Education in Agriculture in the United States. Misc. 3233, Vocational Division, Washington 25, D. C. 71 pp. (No Date).

[6]Federal Security Agency, U. S. Office of Education, An Evaluation of Local Programs of Vocational Education in Agriculture. Vocational Division Bulletin No. 240. Agricultural Series No. 58. Washington, 25, D.C. 1949. 75 pp.

Previous experience had been gained in rating teachers on performance in working with all-day students, young and non-veteran farmers, and veteran and adult farmers.(7)

After study and consideration of several methods which had been used in evaluation of programs and individuals in vocational agriculture, a rating scale was developed.

Developing the Performance Rating Scale

As has already been pointed out, a list of traits concerned with performance of teachers had been previously developed. However, the problem was now concerned with selecting a temporary list of descriptive statements characterizing performance that could later be submitted to a jury to evaluate. Each phase of the duties and responsibilities of the teacher of vocational agriculture was set down, and descriptive statements were prepared for each. These statements included items tending towards good performance and descending to items which characterize poor performance in teaching agriculture. A temporary list was developed and presented to several committee members who made suggestions and criticisms.

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[7]George W. Sledge, "Tenure of Teachers of Vocational Agriculture in North Carolina Including Factors Involved." Thesis, M. of Ag. Ed. North Carolina State College, Raleigh, North Carolina. 1951. pp. 63-64.

The list was then revised in light of these and other suggestions. The items were arranged in random order under the major subsection being characterized in terms of evidences of teacher performance. The purpose of placing these items at random was to eliminate the possibility of the rater being influenced by the thought that items run from ascending to descending order of value. This revision constituted the original "Vocational Agriculture Teacher Performance Rating Scale" which was accompanied by a page of "Directions to Jury Evaluating the Vocational Agriculture Teacher Rating Scale."[8] Prior to the development of this original form, a meeting of the State Advisory Council for Vocational Education in Agriculture and the State Research Committee for Vocational Agriculture in April, 1953, held in Lansing and East Lansing respectively, had been attended. Suggestions from the members of these two groups, which were felt to be feasible, were incorporated into the study.

The original rating scale used by the jury of experts contained only two columns for each item. One column was provided that the juror could check if he felt the item should be retained for evaluating performance. The second column was for supplying weights of items retained on a numerical scale from a negative five to a positive five for each item's relative importance towards good and poor performance. The directions provided to the jurors essentially pointed out that if experts could first agree on what items should

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[8]Appendix A.

be used to describe teacher performance and the relative value of each item, then it could be expected that consistent agreement on performance might be forthcoming.

Six teacher educators at Michigan State College in the Department of Agricultural Education, five state supervisors of vocational agriculture in Michigan, and four school administrators in Michigan were asked to evaluate and weight the items. Each member of this jury was qualified to serve in the evaluation of the original form due to his experience and professional training as evidenced by his tenure and position. This jury was also given the responsibility of deleting any items or phrases which they deemed undesirable on the rating scale, and likewise, they were given the opportunity to submit additional items.

The standards which each item had to meet were decided upon after conferring with several members of the guidance committee. The following standards, with reasons for their inclusion, were established for each item:

1. Each item had to receive either all positive or all negative weights to be included. This standard provided a basis for eliminating items receiving both negative and positive weights which might have different interpretations by various prospective raters. Such weightings also showed lack of agreement and continuity of value weighting; therefore, the items were not acceptable.

2. Any one of the three groups of raters must have checked at least 50 percent "Retain Item" for the item to be retained. It

was recognized that varying philosophies among the jurors might have influence on their individual interpretations and their estimate of relative importance of each item; therefore, this standard was deemed necessary that at least a consensus be found for each of the three sources of evaluations.

3. Since there were 15 jurors, at least 11 jurors must have checked to retain an item when each of the three sources of ratings were summed, in order for the item to be retained. This actually meant that 73 percent of the total number of checks for each item must have been checked to "Retain Item" for its retention. The purpose for this standard was to provide a more stringent test of each item's retention power since it was possible for an item to be retained after meeting the first two standards, yet still lack high agreement of the jurors on its retention.

4. The point of greatest frequency was found for the numerical weight of each item, then a plus and minus two units were set from this point; each item having not more than two numerical weights outside this range was retained. This was another method established to aid in discarding items on which agreement was not highly consistent.

5. The fifth standard was concerned not only with retention of items but also their discriminatory power. To arrive at this standard, it was necessary to develop a procedure for assigning numerical weights to the items retained on the basis of the first four

standards set for item retention. The procedure for assigning numerical weights to the items retained up to this point was: (a) First, the numerical weights assigned to each individual item were added; (b) then, the total received in step (a) was divided by the number of weights added and carried to one decimal place; this value constituted the numerical weight of the item as evaluated and weighted by the jury. From this, the fifth standard, concerned with item discriminatory power, was derived. Any items having at least a plus three (+3) to a plus five (+5) value or a negative three (-3) to a negative five (-5) value were to be retained. The purpose of this standard was to include only items that would differentiate between good and poor teacher performance. This standard also aided in elimination of items having little discriminatory value that would only add to the length of the teacher performance rating scale.

Upon applying each of these five standards to the items evaluated and weighted by the jury of experts, 26.8 percent of the original 146 items were discarded from the performance rating scale for failing to meet one or more of the standards established. In Table I, the number of items discarded and retained by subsections on the original performance rating scale is presented. The following titles were given to the lettered subsections on the performance rating scale: A - Working with People in Community; B - Maintaining Professional Standards and Relationships; C - Planning and Conducting General Activities; D - Maintaining Administrative Relationships;

E - Utilizing Acceptable Methods of Teaching; F - Conducting Programs with All-Day Students; G - Conducting Programs with Young Farmers and/or Adult Farmers; H - Providing On-Farm Instruction; I - Supervising and Developing Farming Programs; J - Teaching Farm Mechanics; and K - Conducting and Advising Future Farmers of America. The individual items that comprised each of the subsections on the rating scale can be found with their respective numerical values in the Appendix.(9)

After the five standards were applied to all items on the original performance rating scale, the official numerical weights were computed on the basis of weights assigned by the 15 jurors. The revision of the original scale constituted the "Vocational Agriculture Teacher Performance Rating Scale" which was used in the trial test.(10) It is important to note that "No" responses on the scale are scored opposite in value to "Yes" responses, whereas, "?" responses are scored as zero (0) or neutral in value. Other information concerning this matter is presented in the discussion on the method used to score the performance rating scale.

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[9] Appendix C.

[10] Appendix B.

TABLE I

NUMBER OF ITEMS DISCARDED AND RETAINED BY SUBSECTIONS ON THE ORIGINAL PERFORMANCE RATING SCALE

Subsection on Rating Scale	Number of Items on Original Scale	Number of Items Discarded	Number of Items Retained	Percent Retention of Items
A	10	3	7	70.0
B	10	2	8	80.0
C	17	3	14	82.3
D	9	3	6	66.6
E	16	7	9	56.2
F	10	2	8	80.0
G	16	4	12	75.0
H	8	3	5	62.5
I	12	3	9	75.0
J	21	6	15	71.4
K	17	3	14	82.3
Total	146	39	107*	73.2

*Total number of items retained (107) represents 73.2 percent of the number of items on the original scale, including nine items added and evaluated during the process of having the jurors evaluate and weight the items.

The Trial Test

Before using the "Vocational Agriculture Teacher Performance ating Scale" as a device for collecting data, a trial test was made. ie purposes of the trial were briefly: (1) to test the scores erived among sources to discover the probable significant correla- ions on scores among sources of ratings; (2) to eliminate items not sed in scoring teachers; (3) to eliminate misunderstood terminology. o attempts were made in the trial test to analyze the relationship f performance scores to pre-teaching characteristics.

Forms for the trial test were mimeographed in sufficient mbers to be mailed to ten school administrators and to be presented o the teacher educators at Michigan State College and to the state upervisors of vocational agriculture in Michigan. Ten teachers f agriculture with approximately the same length and types of perience as teachers included in the study were selected for the ial test. However, none of these teachers were included in the mple used in analyzing the relationships of pre-teaching characteris- ics and subsequent teaching performance.

Individual typewritten letters, stating the purpose of the study d asking for cooperation, were prepared and mailed to the school dministrators with a rating scale to be completed for the administra- r's teacher of agriculture. This material was accompanied by a amped, self-addressed envelope for their convenience in returning

the completed forms.[11] During the same week this material was mailed to the ten school administrators, the teacher-educating staff and the state supervisory staff were presented coded performance rating scales to be completed on the same ten teachers. In this manner, performance ratings were made for the ten teachers completing the trial test. Two school administrators failed to return the rating scales. Therefore, it can be seen that for eight teachers, three ratings each were received and that for two teachers there were only two ratings each. All forms were completed for each teacher by the teacher educators and the state supervisors.

Scoring the Performance Rating Scale:

The first problem encountered in scoring the performance rating scale was how to score the "?" responses. Much of the review of literature contained results of rating scales, but little on techniques used in scoring individual responses in cases similar to the present study. There was, however, one reference that had some bearing on this problem and was reported by Brown, who suggested a procedure for including "cannot say" (?) items in scoring the Minnesota Multiphasic Personality Inventory. He states:

> "We see a large number of Inventory items omitted from scoring by the 'either - or'

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[11] Appendix E.

> logic of the Cannot Say device. The ? unit appears to have its reason for being in the following assumptions: If the patient cannot, or will not (same thing?), decide whether a particular statement is either true or false, or if it does not pertain to him, then it is neither true or false, and should be left out of the scoring scheme. It is proposed, as an hypothesis, that certain ? items be regarded as having some truth in them. This reasoning is used: That which is not entirely true, or mostly or usually true, and yet is not entirely false, is partially true." (12)

After making this statement, Brown proposed that items marked under the "?" column should be assigned a one-half point value as compared to a one-point value for items answered as "yes" or "no". He says:

> "The reason for assigning a trial value of 1/2 to the ? mark scored is this: Those True or False cards which qualify for scoring have each a value of 1. The ? card is considered as falling somewhere between this point and zero, and half-way between is a logical trial point." (13)

Under the assumptions Brown stated, it follows that the method suggested was the logical one for scoring the items in this case, but in the present study negative and positive weights assigned to items were not of a one-point value. Also, the raters were given instructions to use the "?" column only when they had no basis for a decision in answering either "yes" or "no". Therefore, it appeared

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[12] Manual N. Brown, "Evaluating and Scoring the Minnesota Multiphasic 'Cannot Say' Items." Journal of Clinical Psychology. 6:181. April, 1950.

[13] Ibid., p. 182.

that the only other alternative for scoring the "?" column in the trial test was to assign automatically a neutral value of zero (0) to all responses checked under the "?" column.

The performance rating scale used in the trial test had three columns - "yes", "no", and "?". The rater simply checked the appropriate column as to whether the item characterized the given teacher's performance or not, or he could check the "?" column when he had no basis for a decision.

Since there are 107 items on the rating scale which were used, there was a need to develop methods to reduce the problem of scoring the 28 forms collected in the trial test. A scoring stencil was devised with the positive and negative weights of each item written on the stencil above the marking space for each response. By applying the scoring stencils to each rating scale and using an automatic calculator, computations were made speedily and accurately. In this way the teacher's performance score was readily derived. The weights used on the scoring stencils were those assigned the respective items by the jury who evaluated and weighted each item on the performance rating scale.

It was arbitrarily decided that any rating form containing more than 50 percent of the total possible 403.4 points on the scale in the "?" column would not be used in determining either the correlations on scores in the trial test or the teacher's performance in relationship to pre-teaching, measurable traits on the student profile. The reason for this decision was to increase the validity

of the ratings included in the study. The assumption made was that if a particular rater had no basis for a decision on more than 50 percent of the total possible points on the scale, his rating was potentially highly subjective and unreliable on a majority of the items; therefore, the score derived from such a rating would not add to the value of the study.

After analyzing the technique of computing the performance rating score, three steps were established for arriving at a teacher's performance score. They were:

A. First, compute the score that the teacher gets by adding or subtracting the value of each item as checked by the rater in either the "yes" or "no" columns. This was denoted as value A.

B. Second, add all values of any items checked in either "yes" or "no" columns, irrespective of negative or positive sign values, but not for any item checked in the "?" column. This was denoted as value B. The reason for this was to get the total possible positive score had the items been checked favorably for the teacher's performance.

C. Last step, divide the value computed in B into the value computed in A, and multiply by 100. The value received equalled the teacher's performance score in terms of percentage based on 100. The formula derived from the three steps involved in computing the performance score was:

$$\text{Teacher's Performance Score} = \frac{A}{B} \times 100$$

Some further explanations probably need to be made regarding the procedure for scoring the teacher performance rating scale. Any item checked under "yes" denoted that it characterized the teacher's performance, thus it was added to or subtracted from the score of the teacher as indicated in step A. Any items checked under "no" indicated a lack of that aspect of performance or a negative aspect of performance, therefore, their values were also added or subtracted as the case may have been for a particular item.

Any items checked under the "?" column were eliminated from consideration and not used in any computations to eliminate a penalty for a teacher because his performance was not known. The teacher's performance score was based only on those items on which the rater could make valid ratings. Under this situation, the "?" column was relegated to a position of neutrality and assigned the value of zero. By this technique the "?" column in actuality became an aid to increasing the validity of "yes" and "no" responses as the rater would use the "?" column only when he had no basis for a decision.

Upon scoring the performance rating scales as indicated, scores were derived for subsections on each scale as well as a total performance score for the total scale. Data from these scores and their analyses seemed pertinent to the ultimate study and are presented for consideration.

Trial Test Findings:

The data presented here are concerned with the scores derived on the ten teachers included in the trial test with consideration given to the correlation of scores primarily by subsections between teacher educators, state supervisors, and school administrators. Before correlations of scores received from each teacher rating could be computed, the scores had to be ranked and given rank values and the differences in ranks derived. All computations comprising the trial test findings, therefore, are based upon the data supplied in Table II.

Table II shows that the administrators of teachers coded number three and number eight did not return the rating scales for their respective teachers. Therefore, only one correlation could be computed for each of these teachers; this correlation, in both instances, was based upon subsectional scores provided by teacher educators and state supervisors. Failure to find a score in any subsection for a teacher as rated by either the teacher educators, state supervisors or school administrators denotes either one of two alternative reasons: (1) the teacher may not have performed in the area - for example, some teachers do not conduct farm-shop programs or adult-farmer programs - or (2) the rater may not have observed the teacher in the area and thus did not feel competent to check the teacher's performance only on a subjective opinion.

From Table II, Table III was derived to compute correlations of total scores between the raters to determine if there was any significant relationship between total performance scores between any two given raters. In order to facilitate the process of deriving correlations and tests of significance, a "Table for Spearman's Rank Correlation Coefficient for Teacher Performance Scores by Teacher-Educators (T.E.), School Administrators (Adm.) and State Supervisors (Sup.) was prepared."[14] The test of relationship applied in the trial test was that of the Spearman's Rank Correlation Coefficient which was derived by the following formula:[15]

$$r_r = 1 - \frac{6\Sigma D^2}{N\,(N-1)}$$

In the formula, N denoted the number of paired observations; whereas, D denoted the difference between two ranks of one varying unit.

The correlations received from data by use of the formula given were tested for significance at the five-percent level using the following formula by Hagood and Price[16] and then using the Table[17] provided for the interpretation of the value received:

$$t = r_r \sqrt{\frac{N-2}{1-r_r^2}}$$

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[14] Appendix J.

[15] M. J. Hagood and D. O. Price, Statistics for Sociologists. Henry Holt and Company, New York. 1952. p. 467.

[16] Ibid., p. 468.

[17] Ibid., p. 560.

TABLE II

TRIAL TEST SUMMARY FOR SUB-SECTIONAL SCORES ON TEACHER PERFORMANCE RATING SCALE ON TEN TEACHERS OF VOCATIONAL AGRICULTURE IN MICHIGAN*

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
1	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	71.2	100	100	81.2	100	100	81.1	100	93.8
	Adm.	73.2	100	84.8	100	100	100	100	100	100	100	100	96.7
2	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	100	100	-	-	100	100	100	100
	Adm.					No Return							
3	T.E.	100	100	52	100	100	100	56.5	100	72.1	64.1	78	83.3
	Sup.	100	72.8	-75.6	35.3	-23.2	100	-	-49.6	-6.1	100	41.8	24.8
	Adm.	75.5	100	78.6	100	100	71.6	64.3	100	100	47.4	100	83.4
4	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	69.6	100	100	100	100	100	100	100	100	-	100	97.6
	Adm.	100	100	100	67.2	67.0	50.2	100	100	100	-	100	88.8
5	T.E.	74.7	100	-55	67.2	-44.7	-100	-	-100	-12	-	100	40.6
	Sup.	30.4	100	47.3	-30	-44.3	-3.0	-	-100	-	-	100	32.8

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	84.2	100	100	100	100	100	100	98.2
6	T.E.	100	100	100	77.2	100	100	100	100	100	100	100	98.9
	Sup.	100	100	100	100	85.2	100	100	-	100	100	100	98.8
	Adm.	72.5	54.4	-12.9	69.0	27.9	74.8	100	100	100	61.6	100	66.6
7	T.E.	-56.1	68.3	-100	-100	-100	-100	-100	-100	-100	-100	100	-56.4
	Sup.	100	100	100	7.2	100	-	100	-	-	-	-	90.4
	Adm.					No Return							
8	T.E.	100	100	57.7	100	-14.1	20	-	100	100	100	100	68.1
	Sup.	100	100	43.6	35.4	28.5	60.9	-	-	100	100	-	72.9
	Adm.	42.2	75.4	52.8	-18.5	31.2	-.30	-	100	100	-	76.7	48.7
9	T.E.	100	100	53.3	45.0	81.4	100	-	100	100	100	100	80.4
	Sup.	100	100	84.8	66.3	100	100	-	100	100	-	100	95.4
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
10	T.E.	100	100	100	100	21.4	19.2	100	47.6	100	100	100	82.0
	Sup.	100	100	100	100	100	66.2	-	-	100	-	100	95.6

*Abbreviations used in the column "Rated by" are as follows:

Adm. - Administrator
T.E. - Teacher Educators
Sup. - State Supervisor

When the data supplied in Table III were ranked and tested in the two formulas for testing relationships by the Spearman's Rank Correlation Coefficient, it was found that teacher performance scores based upon total scores only between teacher-educators and school administrators had a rank correlation of 0.448, which was not significant at the five-percent level. Teacher performance scores based upon total scores between teacher educators and state supervisors on the ten teachers had a rank correlation of 0.613, which was not significant at the five-percent level of significance. The performance scores on the ten teachers when correlated for scores based on ratings by state supervisors and school administrators had a rank correlation of only 0.246, which also was not significant at the five-percent level. It can be seen from these tests, based on total scores only, that insignificant rank correlations were produced between the three sources of ratings for the teachers included in the trial test.

Attention was next turned to the study and analysis of correlations based upon subsectional scores between the three sources of ratings. The ranking of scores necessary for computations of arriving at the Spearman's Rank Correlation Coefficients on subsectional scores between teacher educators and state supervisors, teacher educators and school administrators, and school administrators and state supervisors was based upon the subsectional scores supplied in Table II.

TABLE III

DERIVED TOTAL SCORES ON TEACHER OF AGRICULTURE PERFORMANCE USING THE TEACHER PERFORMANCE RATING SCALE IN THE TRIAL TEST

Teacher Code Number	Ratings by: Teacher Educators	School Administrators	State Supervisors
1	100	100	93.8
2	100	96.7	100
3	83.3	-	24.8
4	100	83.4	97.6
5	40.6	88.8	32.8
6	98.9	98.2	98.8
7	-56.4	66.6	90.4
8	68.0	-	72.9
9	80.4	48.7	95.4
10	82.0	100	95.6

Table IV shows the Spearman's Rank Correlation Coefficients (r_r) derived from the subsectional scores of the ten teachers included in the trial test. It was of interest to note that of 26 correlations computed, only one was negative. Correlation coefficients which were indicated as being significant at the five-percent level were interpreted to mean that the subsectional scores between the

raters were positively related, and it could be said that there was high agreement between the raters as to the performance of these teachers included in the trial test.

TABLE IV

SPEARMAN'S RANK CORRELATION COEFFICIENTS FOR TEACHER PERFORMANCE SCORES BASED UPON SUBSECTIONAL SCORES ON THE VOCATIONAL AGRICULTURE TEACHER PERFORMANCE RATING SCALE AS RATED BY TEACHER EDUCATORS, STATE SUPERVISORS, AND SCHOOL ADMINISTRATORS

Teacher Code Number	Teacher Educators and School Administrators		Teacher Educators and State Supervisors		School Administrators and State Supervisors	
	r_r	t	r_r	t	r_r	t
1	1.000	3.16*	.648	2.68*	.648	2.68*
2	.712	3.18*	1.000	2.82*	.673	2.86*
3	-	-	.286	2.00	-	-
4	.563	2.17	.773	3.65*	.563	2.04
5	.426	1.32	.664	2.34	.564	1.80
6	.705	3.11*	.673	2.69*	1.000	3.00*
7	.152	.46	-.214	.47	.018	.04
8	-	-	.744	2.92*	-	-
9	.565	1.93	.939	7.60*	.495	1.58
10	.648	2.66*	.849	4.24*	.734	2.83*

*Significant at the five-percent level.

By summarizing the correlation data presented in Table IV, it was discovered that a total of 15 correlation coefficients were significant at the five-percent level, which included scores derived from seven of ten teachers. Eleven rank correlation coefficients were not significant at the five-percent level. However, four of the 11 correlations listed as being insignificant were almost significant at the five-percent level. From this summary, one would expect that approximately 70 percent of correlations between subsectional scores for teachers of agriculture would be positively correlated.

Summary of Trial Test:

Even though the rank correlation coefficients between total scores, computed from the "Vocational Agriculture Teacher Performance Rating Scale", between the three sources of ratings were not significant at the five-percent level, it was discovered that correlations based on subsectional scores were significant. The latter ones had implications for the remainder of the study and are presented to substantiate the procedure used in the body of the study.

It was found that performance of teachers as rated by teacher educators and state supervisors correlated higher than did scores between teacher educators and school administrators or state supervisors and school administrators.

Scores on performance as rated by teacher educators and school administrators correlated higher than did scores by state supervisors

and school administrators. This difference, however, was only slight. This indicated that the lowest correlations between scores on performance of teachers were for state supervisors and school administrators.

As 10 teachers were included in the trial test, it was found that 80 percent of school administrators, eight in number, returned the performance rating scale. One-hundred percent returns were received from teacher educators and state supervisors.

It was found that 15 of 26 correlations between two sources of ratings on individual teachers correlated significantly at the five-percent level or above. This represented 57.7 percent of the correlations computed that were significant at the five-percent level. Seventy percent of the teachers had two or more raters who agreed on their performance.

It was found that total teacher performance scores ranged from -56.4 to 100 with a total possible range of -100 to 100. No distributional study of scores was made in the trial test.

Conclusions Regarding the Trial Test:

On the basis of the data accumulated in the trial test on the performance rating scale, a majority of the correlations computed between rating sources for each individual teacher in the study proper would be expected to correlate positively at the five-percent level of significance.

Total scores, as such, on teacher performance did not correlate significantly nor as highly as performance rated by each of the three sources when subsectional performance scores were correlated. Over-all performance scores do not indicate areas of performance in which raters fail to agree. Subsectional scores appear to be better measures of specific areas of performance of teachers.

The value of the instrument seemed to lie in finding those teachers on which two or three sources (teacher educators, state supervisors, and school administrators) agree on teacher performance in order that performance may be studied in relationship to pre-teaching traits on student profiles at Michigan State College.

As a majority of the performance scores for an individual teacher, between sources studied, did correlate at the five-percent level of significance, the performance rating scale functioned with consistency.

It was concluded that the same statistical tests should be used in the study to determine which teachers' performance scores would be studied in relationship to pre-teaching characteristics. It was also concluded that when scores on individual teacher performance correlated significantly between two or more sources of ratings, these performance scores should be averaged and used in studying the relationship of some pre-teaching measurable characteristics of prospective teachers and subsequent performance in teaching vocational agriculture.

Procedure Followed in Conducting the Primary Study

Following the completion of the trial test, the performance rating scale used was revised slightly. The primary changes were in reducing the length of the statement of some items and in inserting some additional directions.[18]

An important preparatory phase of the study was that of selecting the teachers included. Certain limitations were established as to which teachers trained at Michigan State College were to be included. The bases of determining individuals were: (a) present teachers of vocational agriculture in Michigan for whom profiles had been prepared in the Department of Agricultural Education; and (b) profiles of each individual to be included had to be complete enough to make the inclusion an asset to the study. As profiles were begun in 1948-49, the first group of teachers included were those graduating in 1948-49. The last group of teachers included were those graduating in December, 1952. Since data on teacher performance were gathered in October, 1953, teachers who had graduated in December, 1952, had taught at least nine months, and teachers who had graduated in 1948-49 had taught a maximum of four years and three months. There was a total of 88 teachers of vocational agriculture on whom performance scores were made. This number represented 100 percent of the teachers who had been trained in this period and who were

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[18] Appendix C.

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teaching vocational agriculture. In Table V, it can be seen that a total of 174 persons were trained. Of this number 86, or 49.4

TABLE V

TOTAL NUMBER OF TEACHERS OF VOCATIONAL AGRICULTURE TRAINED IN MICHIGAN BETWEEN 1948-49 AND DECEMBER, 1952

Year of Training	Total Trained	Trained but not now in Vocational Agriculture teaching		Trained and in Vocational Teaching when study was made	
		Number	Percent	Number	Percent
1948-49	36	20	55.5	16	44.5
1949-50	47	22	46.8	25	53.2
1950-51	62	32	51.6	30	48.4
1951-52	29	12	41.4	17	58.6

percent had either not entered teaching or had dropped out after teaching for a time.

A coded list of teachers, their school administrators and their addresses was prepared. This code was subsequently used on performance rating scales mailed to the respective 88 school administrators. Five-by-eight-inch cards containing the pre-teaching characteristics to be studied were duplicated in sufficient number so that one was available for each teacher. The data found on each teacher's profile[19] in the departmental files and the college record

[19] Appendix G.

department were recorded on these cards and later used in the analysis of data.

After the 88 teachers had been determined as the ones to be included, it was necessary to duplicate a considerable number of revised performance rating scales, one for each teacher's school administrator, state supervisor, and teacher educator. The performance rating scale was prepared by the mimeographed process. Each scale was then coded by number to assure confidential information. On September 30, 1953, the coded scales were mailed to the school administrators accompanied by a letter stating the purpose of the study, an endorsement of the study by the candidate's major adviser, and a self-addressed, stamped envelope for returning the completed form.(20) During the same week that forms were mailed to the school administrators, coded scales were presented to the teacher-education staff and to the state supervisors.

Regarding the letters accompanying the rating scales to the administrators, it should be pointed out that each of the 88 letters was typed personally. Eleven of the 88 forms were mailed to school administrators of schools in which 11 teachers had worked during the previous year. This was done to eliminate a school administrator rating a man whom he had not had adequate time to observe.

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20 Appendix E.

Since some school administrators did not return the forms by the indicated date in the letter, it was necessary to prepare and mail follow-up letters.[21] Accompanying the first follow-up letter was another coded rating form identical to the one previously mailed. This type follow-up proved very effective. After the second follow-up letter, the returns were tallied and it was found that 86 of the 88 school administrators had responded giving a 96.5 percent return from school administrators. One-hundred percent returns were received from the teacher educators and state supervisors. However, as will be noted in the presentation of data, some of the forms completed and returned by the state supervisors contained an insufficient number of items rated and thus were not used in determining teacher performance.

The rating forms in the study were scored by the same procedure as previously cited in scoring the performance rating scale in the trial test. The rank correlation coefficient was computed on performance scores among the three sources of ratings, and where significant correlations were found the scores were added and averaged. These performance scores served as the criteria of teacher performance in determining the relationship of pre-teaching characteristics to subsequent performance in teaching vocational agriculture. Data regarding correlations on performance scores can be found in

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[21] Appendix F.

Chapter IV as well as other statistical techniques used in the analysis of the data included in the study.

A selected review of literature and related materials was made. There were three purposes for making the review: (1) to discover information pertaining to the items included on the student profiles which were analyzed and tested for association with teacher performance, (2) to discover techniques other investigators had used in analyzing similar data, and (3) to determine the findings, summaries and conclusions of other pertinent research that might aid in understanding and interpreting similar data which would serve as a background for doing a qualitative research study in this area.

A total of 21 measurable characteristics were included on the student profile. Student-teaching marks were also studied in relationship to teacher performance. The data were analyzed statistically in compliance with the purposes of this study.

Assumptions Made in the Study

In order to provide a framework of reference for the study and to establish procedures to be followed, it was necessary to make certain assumptions. They are as follows:

1. That persons aiding in the development of the performance rating scale were the same types of persons who were by necessity continuously evaluating performance of teachers of vocational agri-

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culture, and were therefore qualified to evaluate and weight items on the scale.

2. That a rater would give a more valid rating on performance if the opportunity were allowed for the rater to say he had "no basis for a decision" on any items.

3. That scores of performance between sources of ratings, correlating at the five-percent level of significance, should be averaged and used to study the relationship of performance to pre-teaching characteristics of each respective teacher.

4. That ratings by teacher educators, state supervisors and school administrators were valid and reliable since each of these three sources were more or less intimately aware of the performance of the 88 teachers included.

5. That so far as observer ratings were possible, these three sources used were the logical sources for rating performance of these teachers.

6. That each check made for any item on the performance rating scale constituted an unbiased and non-prejudiced rating that was as objective as any rating could have been.

7. That since all items were numerically weighted and no rater knew the relative weights of each item, a more objective rating was received than if each rater had been asked to make such value judgments on performance as "good", "fair" or "poor."

CHAPTER IV

PRESENTATION OF DATA

Introduction

In this chapter the presentation and analysis of data are made together with pertinent findings. Attention is first given to selection of teachers to be studied. The relationship of some pre-teaching characteristics is then studied in relation to the criterion of average performance of teachers. Several sections are also devoted to relationship of scholastic ability and achievement, professional achievement and interests, and qualifications in farming to selected areas of performance of teachers. Since student teaching is one aspect of teaching performance, it is studied in relationship to pre-teaching characteristics as well as to selected areas of performance in the field.

To provide insight into performance of teachers and profile data that may have resulted in lack of agreement on teacher performance, a case-study analysis is made of five teachers on which raters could not agree on their performance.

Finally, a brief analysis is made of the ability of selected persons to predict teacher performance on the basis of profile data only.

Testing Performance Scores of Teachers of Vocational Agriculture To Determine Agreement Between Raters and To Select Teachers To Be Studied

It is important to note that all performance scores of the 88 teachers on whom ratings were secured were derived by the steps outlined in Chapter III. A summary of the subsectional scores on the "Teacher Performance Rating Scale" for the 88 teachers in Michigan first selected is presented in an appendix.[1] The supervisors could not rate seven teachers on many items due to insufficient acquaintance with the teachers. However, 100 percent returns of ratings were received from the teacher educators and state supervisors. Eighty-six of 88 school administrators returned the rating forms sent them. This represents a 96.5 percent return from school administrators. It will be noted later that several teachers could not be rated on certain subsectional areas. This may have resulted from inadequate observation of the teacher or no performance in some areas of work.

In the trial test, it was found that averaged performance scores did not correlate at the five-percent level of significance. For this reason, it was decided that average performance scores of the teachers in the study would be tested for agreement of association by

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[1] Appendix H.

the analysis of variance. This test involved the computation of a total sum of squares of average performance scores on each teacher by teacher educators, school administrators and state supervisors. The test is designed to determine if the variation within one source

TABLE VI

ANALYSIS OF VARIANCE OF AVERAGE TOTAL PERFORMANCE SCORES OF TEACHERS OF VOCATIONAL AGRICULTURE BY THREE SOURCES OF RATINGS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square Variance	F
Total	216,372.47	244		
Between-class	22,740.04	2	11,370.02	14.208
Within-class	193,632.43	242	800.13	

$P^{*}(F_{2,\ 242} = 14.208) < .001$

*The probability of getting an F of 14.208 based on two and 242 degrees of freedom is less than .001.

of rating is greater than the variation among the sources of ratings. The results of this test are presented in Table VI. A total of 245 average performance scores were used to develop the data presented. The average performance scores of teachers on which the analysis of variance is based are the ones previously presented in the summary of subsectional scores.

Since the findings indicate that the probability of getting an F of 14.208 is less than .001, it is concluded that the variation in average performance rating scores from different sources of ratings is significantly greater than that arising from differences within a source of rating. This essentially means that average performance scores fluctuated more among teacher educators, school administrators and state supervisors than average performance scores assigned to teachers by teacher educators when considered alone. The same is true for scores by school administrators and state supervisors. Had the test of analysis of variance proven that the scores were not significantly different, the scores among the three sources would have been averaged for all 88 teachers and subsequently used as the criterion of performance. Since this was not true, it was thought necessary to compute rank correlation coefficients for performance scores based upon subsectional scores of teachers on the "Vocational Agriculture Teacher Performance Rating Scale."

However, to determine expected reliability of the scale, coefficients of correlation were computed on average performance scores of 62 teachers between the three raters. The product-moment correlation coefficient between school administrators and teacher educators was .300; average scores between school administrators and state supervisors correlated .356; and average scores between teacher educators and state supervisors correlated .404. When these correlation coefficients were extended by considering three raters

in the Spearman-Brown Prophecy Formula,[2] they resulted in estimates of reliabilities ranging from .562 to .671. Rolfe[3] indicated that rating scales give positive product-moment correlations from .36 to .43 when used by experienced and competent supervisors. A rank correlation coefficient computed between two raters on subsectional scores in Section K of the scale for 62 teachers was .67 with a "t" of 6.75 which is highly significant at the .001 level. A product-moment correlation computed between administrators and teacher educators on scores in Section K was .440, which has an estimated reliability of .702. Even though this was true, it was felt that agreement on individual teachers was of utmost importance; therefore, rank correlations were computed between raters on subsectional scores.

The use of the test of Spearman's Rank Correlation Coefficient provided the means for selecting teachers from the original 88 teachers. This test was made for each teacher as described in Chapter III. There were three rank correlations computed for a majority of the teachers, however, only two correlations were computed on each teacher for whom only two raters evaluated their performance. A summary of the Spearman's Rank Correlation

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[2]Harry A. Greene, Albert N. Jorgensen, and J. Raymond Gerberich, Measurement and Evaluation in the Secondary School. Longmans, Green and Co., Washington, D.C. 1943. p. 591.

[3]Infra, p. 52.

Coefficients based upon subsectional scores of teacher performance is presented in Table VI. The size of the "t" determines whether the correlation coefficient is significant or not when the number of degrees of freedom are known. The five-percent level of significance was used as the point at which agreement was desired.

By analyzing the data in Table VII, it can be noted that 62 teachers' performance scores between two or more raters correlated at the five-percent level. This means that 70.4 percent, or 62, of the original 88 teachers were used in analysis of pre-teaching characteristics compared to teaching performance. It was found that 113 Spearman's Rank Correlation Coefficients computed were significant at the five-percent level. A total of 226 correlation coefficients were computed between raters. Therefore, exactly 50 percent of the total number of correlations computed between raters was significant at the five-percent level.

A total of nine negative correlations was computed between raters; four between scores based on evaluations by teacher educators and school administrators; two between scores based on ratings by teacher educators and state supervisors (one of which was significant at the five-percent level); and three between scores based on ratings by school administrators and state supervisors. This total of nine negative correlations represents only 3.9 percent of the total 226 correlations computed.

After it was discovered that 62 teachers' performance scores correlated significantly between two or more raters, their subsectional

TABLE VII

SPEARMAN'S RANK CORRELATION COEFFICIENTS FOR TEACHER PERFORMANCE SCORES BASED UPON SUBSECTIONAL SCORES OF 88 TEACHERS ON THE VOCATIONAL AGRICULTURE TEACHER PERFORMANCE RATING SCALE AS RATED BY TEACHER EDUCATORS, STATE SUPERVISORS AND SCHOOL ADMINISTRATORS

Teacher Code Number	Teacher Educators and School Administrators		Teacher Educators and State Supervisors		School Administrators and State Supervisors	
	r_r	t	r_r	t	r_r	t
1	.580	2.130	-	-	-	-
2	.341	1.084	.706	2.820*	.327	.948
3	.789	4.055*	.411	1.552	.647	2.411*
4	-.248	1.260	-.115	.356	.742	3.49*
5	-	-	.773	3.660*	-	-
6	.314	.992	.176	.505	.543	1.824
7	.278	.867	.491	1.590	.510	1.670
8	.407	1.257	-.690	2.72*	.642	2.63*
9	1.000	3.160*	.773	3.63*	.773	3.630*
10	.121	.375	-	-	-	-
11	.525	1.947	.406	1.404	.280	.921
12	.682	2.639*	.555	1.887	.204	.592
13	.250	.815	.542	2.037	-.038	.110
14	.491	1.689	.613	2.188	.861	4.778*
15	.528	1.964	.673	2.725*	.155	.469
16	.771	3.620*	.637	2.477*	.469	1.670

Teacher Code Number	Teacher Educators and School Administrators		Teacher Educators and State Supervisors		School Administrators and State Supervisors	
	r_r	t	r_r	t	r_r	t
17	.628	2.417*	-	-	-	-
18	.789	3.952*	.691	2.853*	.519	1.816
19	.709	3.013*	-	-	-	-
20	.854	5.124*	.461	1.465	.634	2.314*
21	-	-	.177	.566	-	-
22	1.000	3.160*	1.000	3.160*	1.000	3.160*
23	.817	4.493*	1.000	3.000*	.988	19.266*
24	.406	1.404	.406	1.404	1.000	3.160*
25	.392	1.344	.691	3.019*	.705	3.144*
26	.725	3.153*	.182	.553	.482	1.648
27	.292	.963	.413	1.280	.634	2.320*
28	-.248	.808	.323	1.020	-.127	.383
29	.387	1.257	.203	.653	.373	1.204
30	1.000	3.160*	.755	3.246*	.755	3.246*
31	.861	4.735*	.743	3.135	.555	1.887
32	.789	4.023*	1.000	3.160*	.789	4.023*
33	-	-	.263	.860	-	-
34	.809	3.640	-	-	-	-
35	1.000	3.160*	.773	3.633*	.773	3.633*
36	.264	.818	.819	4.258*	.438	1.533

Teacher Code Number	Teacher Educators and School Administrators		Teacher Educators and State Supervisors		School Administrators and State Supervisors	
	r_r	t	r_r	t	r_r	t
37	.285	.826	-	-	-	-
38	.250	.772	.503	1.745	.770	3.403*
39	.789	4.023*	.773	3.633*	1.000	3.000*
40	.705	3.137*	.789	4.023*	.789	4.023*
41	.789	4.023*	1.000	3.000*	.773	3.633*
42	.523	1.834	.316	.916	.755	3.246*
43	1.000	3.160*	.710	3.187*	.710	3.187*
44	.848	4.748*	.505	1.752	.562	2.023
45	.514	1.691	.514	1.691	1.000	2.820*
46	.598	1.686	.598	1.686	1.000	3.160*
47	-	-	.382	1.237	-	-
48	.789	4.023*	.773	3.633*	1.000	3.000*
49	.480	1.728	.647	2.678*	.789	4.023*
50	.789	4.023*	.789	4.023*	.705	3.137*
51	.668	2.832	1.000	3.160*	.668	2.832*
52	.770	3.388*	.449	1.391	.582	2.019
53	.691	2.860*	.691	2.860*	1.000	3.000*
54	.546	1.954	.164	.469	.670	2.546*
55	-	-	.673	2.725*	-	-
56	.773	3.633*	.673	2.725*	.773	3.633*

Teacher Code Number	Teacher Educators and School Administrators		Teacher Educators and State Supervisors		School Administrators and State Supervisors	
	r_r	t	r_r	t	r_r	t
57	.379	1.156	-	-	-	-
58	.364	1.251	.532	1.984	.350	1.179
59	-	-	-	-	.394	1.284
60	.723	3.130*	.328	1.016	-.068	.204
61	-.150	.420	-	-	-	-
62	.598	2.332*	.598	2.332*	1.000	3.160*
63	.182	.555	.628	2.386*	.710	3.124*
64	.705	3.102*	.773	3.633*	.773	3.633*
65	.446	1.471	.535	1.979	.182	.555
66	.628	2.386*	.319	.988	.647	2.652*
67	.392	1.332	.383	1.302	.612	2.441*
68	.789	4.023*	.773	3.633*	1.000	3.000*
69	.537	1.879	.257	.796	.078	.234
70	.518	1.968	.228	.729	.710	3.124*
71	.135	.432	-	-	-	-
72	.705	3.102*	-	-	-	-
73	.647	2.652*	.647	2.652*	1.000	3.160*
74	.546	1.965	.546	1.965	1.000	3.000*
75	-	-	.537	1.986	-	-
76	.382	1.222	.182	.546	.519	1.816

Teacher Code Number	Teacher Educators and School Administrators		Teacher Educators and State Supervisors		School Administrators and State Supervisors	
	r_r	t	r_r	t	r_r	t
77	1.000	3.000*	.519	1.816	.519	1.816
78	.057	.171	.393	1.257	.480	1.632
79	.607	2.154	.676	2.568*	.755	3.246*
80	.519	1.816	.755	3.246*	.755	3.246*
81	.167	.534	.326	1.075	.331	1.092
82	.346	1.038	-	-	-	-
83	.194	.543	.355	1.065	.710	2.982*
84	-	-	.219	.672	-	-
85	.789	4.102*	.441	1.543	.647	2.652*
86	.580	2.088	.580	2.088	1.000	3.000*
87	.803	4.336*	-	-	-	-
88	-.337	1.112	.521	1.927	.104	.322

*Significant at the five-percent level.

scores were averaged. Each teacher's averaged subsectional and total score serves as the criterion of performance in this study. The averaged subsectional scores for the 62 teachers selected to be studied are presented in Table VIII. It can be noted that in some cases no program was in operation in some areas of performance. This

TABLE VIII

AVERAGED SCORES ON TEACHER PERFORMANCE RATING SCALE FOR TEACHERS RECEIVING SCORES WHICH CORRELATED AT THE FIVE-PERCENT LEVEL OF SIGNIFICANCE BETWEEN TWO OR MORE RATERS

Teacher Code Number	Subsections with Averaged Scores											
	A	B	C	D	E	F	G	H	I	J	K	Total
2	22.4	57.5	82.5	81.4	82.5	100	100	100	100	**	100	84.0
3	100	100	100	90.6	93.3	100	95.3	100	100	93.0	100	97.6
4	100	71.7	47.5	100	81.9	100	-100	100	75.6	100	94.1	76.9
5	100	83.7	100	100	100	100	100	100	100	100	100	99.0
8	9.4	41.3	42.5	53.9	39.5	56.1	-10	50	58.2	59.6	50	35.6
9	100	100	100	100	95.6	100	100	100	100	100	100	99.4
12	100	46.3	58.7	100	90.9	100	13.5	100	88.2	**	92	83.7
14	100	100	57.4	100	89.8	100	**	100	100	100	100	93.6
15	100	100	87.8	100	45.8	100	100	100	100	100	100	92.2
16	100	55.6	41.1	100	-22.1	3.3	96.2	53	69.2	68	57.5	50.4
17	100	67.1	68.5	100	100	100	100	100	88.9	100	100	93
18	100	100	90.4	92.8	90.6	100	100	100	100	100	100	98.4

Teacher Code Number	Subsections with Averaged Scores											
	A	B	C	D	E	F	G	H	I	J	K	Total
19	100	58.9	55.3	100	100	100	100	100	100	85.7	100	91.3
20	100	100	70.1	91.3	100	100	54.6	100	93.9	78.1	100	91.5
22	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	92.1	100	100	100	100	99.4
24	100	58.8	100	100	100	100	69.5	100	100	100	100	93.8
25	93.8	88.7	81.1	100	100	100	84.4	100	100	100	100	95.9
26	67.3	87.3	100	81.4	100	100	100	100	100	100	100	95.8
27	87.7	100	70.4	100	100	100	85.6	100	100	86.3	100	93.2
30	100	100	78.4	100	100	100	100	100	100	100	100	97.4
31	69.9	86.3	60.3	100	100	100	**	100	88.2	**	100	92.5
32	80	100	100	100	100	100	100	100	100	100	100	98.8
34	100	100	100	81.4	100	100	85.1	100	100	**	100	97.6
35	91	100	100	100	100	100	100	100	100	100	100	99.2
36	100	79.8	100	100	79.8	100	100	100	100	100	96.3	

Teacher Code Number	Subsections with Averaged Scores											
	A	B	C	D	E	F	G	H	I	J	K	Total
38	86.6	100	100	100	100	100	90.1	100	100	**	100	97.3
39	100	100	100	100	95.6	100	100	100	100	100	100	96.1
40	100	100	100	79.6	100	100	100	100	100	100	94.5	98.1
41	100	100	100	100	100	100	95	100	100	100	100	99.3
42	100	100	100	100	85	100	100	100	100	**	100	97.8
43	100	100	90.0	100	92	100	100	100	100	100	100	98.6
44	100	88.7	100	100	100	100	80.5	100	100	100	100	98.0
45	100	100	100	100	100	100	**	100	100	**	100	100
46	100	100	100	100	100	100	100	100	100	100	100	100
48	100	100	100	100	100	100	95	100	100	100	100	99.4
49	80.2	100	100	100	93.2	100	100	61.2	100	97.6	100	95.4
50	100	92.5	100	67.2	100	100	100	100	100	100	100	97.5
51	100	100	100	100	88.5	75.9	86.6	100	100	100	100	95
52	32.6	6 9.9	-38.8	80.1	-37.7	-49.2	**	-1.2	6.7	**	51.3	9.9

Teacher Code Number	Subsections with Averaged Scores											
	A	B	C	D	E	F	G	H	I	J	K	Total
53	100	100	100	100	93.6	100	90	100	100	**	100	98.4
54	81.8	100	100	100	86.8	100	100	100	100	**	100	97.2
55	100	100	87.5	100	100	100	82.9	100	100	89.8	100	97.1
56	100	92.4	100	100	100	100	92.5	100	100	**	100	98.6
60	-11.2	61.3	2.7	77.4	56.2	100	56.5	100	100	100	91.3	74.1
62	100	92.5	100	100	93.3	91.2	92.9	100	100	100	100	97.1
63	100	100	100	100	94.3	91.3	100	75	100	94.6	92.0	97
64	100	92.2	100	100	89	100	100	100	100	100	100	98.3
66	92.6	100	89.3	100	86.9	81	88	100	100	100	100	95.6
67	100	51.9	75.1	100	100	100	100	72.9	86.6	91.4	100	90.3
68	100	92.5	100	100	100	100	100	100	100	100	100	99.3
70	100	100	100	100	100	83	100	100	100	100	83.5	97.2
72	100	100	100	81.4	100	100	79.4	100	100	100	100	96.8
73	88.5	100	100	100	100	100	94.1	100	100	94.6	100	97.6

Teacher Code Number	Subsections with Averaged Scores											
	A	B	C	D	E	F	G	H	I	J	K	Total
74	100	100	100	100	100	100	100	100	100	100	100	100
77	100	100	78.9	100	100	100	*	100	100	100	100	97.9
79	100	94.3	64.9	100	100	100	**	86.9	100	**	100	94.2
80	100	100	95.4	100	100	100	*	100	92.7	93.1	100	98.3
83	87.7	100	66.1	100	92.5	100	**	100	100	100	100	95.0
85	93.3	100	89.1	100	100	100	94.6	100	100	75.9	100	96.2
86	90.5	100	100	100	89.7	91.3	100	86.9	100	**	100	96.5
87	-23.4	4.5	9.7	100	21.2	83.5	82.1	100	90.8	100	100	61.7

*No basis for a decision.
**No program in operation.

TABLE IX

PERFORMANCE SCORES ON SUBSECTION A (WORKING WITH PEOPLE IN COMMUNITY) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval Real Limits	Mid-Point	Frequency (f)
97.5 - 102.5	100	43
92.5 - 97.5	95	3
87.5 - 92.5	90	5
82.5 - 87.5	85	1
77.5 - 82.5	80	3
72.5 - 77.5	75	
67.5 - 72.5	70	1
62.5 - 67.5	65	1
57.5 - 62.5	60	
52.5 - 57.5	55	
47.5 - 52.5	50	
42.5 - 47.5	45	
37.5 - 42.5	40	
32.5 - 37.5	35	1
27.5 - 32.5	30	
22.5 - 27.5	25	
17.5 - 22.5	20	1
12.5 - 17.5	15	
7.5 - 12.5	10	1
2.5 - 7.5	5	
-2.5 - 2.5	0	
Below 2.5	-	2
		N = 62

TABLE X

PERFORMANCE SCORES ON SUBSECTION B (MAINTAINS PROFESSIONAL STANDARDS AND RELATIONSHIPS) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 102.5	100	33
92.5 - 97.5	95	1
87.5 - 92.5	90	8
82.5 - 87.5	85	2
77.5 - 82.5	80	1
72.5 - 77.5	75	
67.5 - 72.5	70	2
62,5 - 67.5	65	1
57.5 - 62.5	60	4
52.5 - 57.5	55	1
47.5 - 52.5	50	1
42.5 - 47.5	45	1
37.5 - 42.5	40	1
32.5 - 37.5	35	
27.5 - 32.5	30	
22.5 - 27.5	25	
17.5 - 22.5	20	
12.5 - 17.5	15	
7.5 - 12.5	10	
2.5 - 7.5	5	1

N = 62

TABLE XI

PERFORMANCE SCORES ON SUBSECTION C (PLANNING AND CONDUCTING GENERAL ACTIVITIES) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 102.5	100	35
92.5 - 97.5	95	1
87.5 - 92.5	90	5
82.5 - 87.5	85	2
77.5 - 82.5	80	3
72.5 - 77.5	75	1
67.5 - 72.5	70	3
62.5 - 67.5	65	2
57.5 - 62.5	60	2
52.5 - 57.5	55	2
47.5 - 52.5	50	1
42.5 - 47.5	45	1
37.5 - 42.5	40	1
32.5 - 37.5	35	
27.5 - 32.5	30	
22.5 - 27.5	25	
17.5 - 22.5	20	
12.5 - 17.5	15	
7.5 - 12.5	10	1
2.5 - 7.5	5	1
-2.5 - 2.5	0	
Below -2.5	-	1

N = 62

TABLE XII

PERFORMANCE SCORES ON SUBSECTION D (MAINTAINS ADMINISTRATIVE RELATIONSHIPS) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 100.5	99	50
94.5 - 97.5	96	
91.5 - 94.5	93	1
88.5 - 91.5	90	2
85.5 - 88.5	87	
81.5 - 85.5	84	
79.5 - 81.5	81	6
76.5 - 79.5	78	1
73.5 - 76.5	75	
70.5 - 73.5	72	
67.5 - 70.5	69	
64.5 - 67.5	66	1
61.5 - 64.5	63	
58.5 - 61.5	60	
55.5 - 58.5	57	
52.5 - 55.5	54	1
		N = 62

TABLE XIII

PERFORMANCE SCORES ON SUBSECTION E (UTILIZING ACCEPTABLE METHODS OF TEACHING) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 102.50	100	35
92.5 - 97.5	95	7
87.5 - 92.5	90	8
82.5 - 87.5	85	3
77.5 - 82.5	80	3
72.5 - 77.5	75	
67.5 - 72.5	70	
62.5 - 67.5	65	
57.5 - 62.5	60	
52.5 - 57.5	55	1
47.5 - 52.5	50	
42.5 - 47.5	45	1
37.5 - 42.5	40	1
32.5 - 37.5	35	
27.5 - 32.5	30	
22.5 - 27.5	25	
17.5 - 22.5	20	1
12.5 - 17.5	15	
7.5 - 12.5	10	
2.5 - 7.5	5	
Below 2.5	0	2
		N = 62

TABLE XIV

PERFORMANCE SCORES ON SUBSECTION F (CONDUCTING PROGRAMS WITH ALL-DAY STUDENTS) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 102.5	100	52
92.5 - 97.5	95	
87.5 - 92.5	90	3
82.5 - 87.5	85	2
77.5 - 82.5	80	1
72.5 - 77.5	75	1
67.5 - 72.5	70	
62.5 - 67.5	65	
57.5 - 62.5	60	
52.5 - 57.5	55	1
47.5 - 52.5	50	
42.5 - 47.5	45	
37.5 - 42.5	40	
32.5 - 37.5	35	
27.5 - 32.5	30	
22.5 - 27.5	25	
17.5 - 22.5	20	
12.5 - 17.5	15	
7.5 - 12.5	10	
2.5 - 7.5	5	1
-2.5 - 2.5	0	
Below -2.5		1
		N = 62

TABLE XV

PERFORMANCE SCORES ON SUBSECTION G (CONDUCTING PROGRAMS WITH YOUNG FARMER AND/OR ADULT FARMERS) OF 54 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class-Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 102.5	100	28
92.5 - 97.5	95	7
87.5 - 92.5	90	5
82.5 - 87.5	85	5
77.5 - 82.5	80	3
72.5 - 77.5	75	
67.5 - 72.5	70	1
62.5 - 67.5	65	
57.5 - 62.5	60	
52.5 - 57.5	55	2
47.5 - 52.5	50	
42.5 - 47.5	45	
37.5 - 42.5	40	
32.5 - 37.5	35	
27.5 - 32.5	30	
22.5 - 27.5	25	
17.5 - 22.5	20	
12.5 - 17.5	15	1
7.5 - 12.5	10	
2.5 - 7.5	5	
-2.5 - 2.5	0	
Below -2.5	-	2

N = 54

92.5 – 97.5	95	
87.5 – 92.5	90	
82.5 – 87.5	85	2
77.5 – 82.5	80	
72.5 – 77.5	75	3
67.5 – 72.5	70	
62.5 – 67.5	65	
57.5 – 62.5	60	1
52.5 – 57.5	55	1
47.5 – 52.5	50	1
42.5 – 47.5	45	
37.5 – 42.5	40	
32.5 – 37.5	35	
27.5 – 32.5	30	
22.5 – 27.5	25	
Below 22.5		1

97.5 – 102.5	100	2
92.5 – 97.5	95	2
87.5 – 92.5	90	1
82.5 – 87.5	85	1
77.5 – 82.5	80	
72.5 – 77.5	75	1
67.5 – 72.5	70	
62.5 – 67.5	65	
57.5 – 62.5	60	1
52.5 – 57.5	55	
47.5 – 52.5	50	
42.5 – 47.5	45	
37.5 – 42.5	40	
32.5 – 37.5	35	
27.5 – 32.5	30	
Below 27.5		1

97.5 - 100.5	99	1
94.5 - 97.5	96	2
91.5 - 94.5	93	2
88.5 - 91.5	90	2
85.5 - 88.5	87	2
82.5 - 85.5	84	
79.5 - 82.5	81	
76.5 - 79.5	78	3
73.5 - 76.5	75	1
70.5 - 73.5	72	
67.5 - 70.5	69	3
64.5 - 67.5	66	
61.5 - 64.5	63	
58.5 - 61.5	60	1

N = 49

TABLE XIX

PERFORMANCE SCORES ON SUBSECTION K (CONDUCTING AND ADVISING FUTURE FARMERS OF AMERICA) OF 62 TEACHERS OF VOCATIONAL AGRICULTURE IN A GROUPED FREQUENCY DISTRIBUTION

Class Interval		
Real Limits	Mid-Point	Frequency (f)
97.5 - 100.5	99	53
94.5 - 97.5	96	
91.5 - 94.5	93	4
88.5 - 91.5	90	1
85.5 - 88.5	87	1
81.5 - 85.5	84	
79.5 - 81.5	81	
76.5 - 79.5	78	
73.5 - 76.5	75	
70.5 - 73.5	72	
67.5 - 70.5	69	
64.5 - 67.5	66	
61.5 - 64.5	63	
58.5 - 61.5	60	
55.5 - 58.5	57	1
52.5 - 55.5	54	
49.5 - 52.5		2

N = 62

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

N = [illegible]

was more noticeable in Subsection G which was concerned with conducting young- and adult-farmer programs and Subsection J which was concerned with teaching farm mechanics in the program of vocational agriculture.

In order to facilitate study of data and to analyze the performance of the 62 teachers selected, it was felt that frequency distributions of performance scores by subsections should be made. Tables IX to XX give the grouped frequency distributions of performance scores by subsectional areas. The column entitled "Real Limits" in each table refers to the performance levels by class intervals.

It was felt that other data regarding performance of teachers by the subsectional areas should be presented. Therefore, in Table XXI, a summary of the ranges, median scores, and arithmetic means of subsectional areas of performance of the 62 teachers is presented. It is of interest to note that six teachers were not conducting either a young-farmer or an adult-farmer program when data were collected. This fact is not shown in Table XIV; nor is the fact that the raters had no basis for any opinion of the performance of two teachers. It was also discovered that 13 teachers had no programs in operation in the farm-mechanics area.

It can be noted in Table XXI that the lowest arithmetic mean of any subsectional distribution of scores is found in Subsection C, with an arithmetic mean of 84.6. Only four subsections had arithmetic means below 90.

It appears that a somewhat better distribution of performance scores might have been expected than was actually received. The range of scores indicates that raters, in instances, did rate teachers very low on the performance rating scale. However, a majority of the teachers had performance scores which were extremely high. Performance scores on all subsectional areas were decidely skewed towards a perfect score. While some teachers scored low on the scale, the scale failed to discriminate between teachers scoring at the top of the scale.

The probable causes of skewed distributions of performance scores may be that: (1) teachers included may have been a superior group of teachers; the fact that they have remained in the field and two or more raters agreeing on high levels of performance tends to substantiate this; (2) points on the scale, on the positive aspects of performance, were not fine enough - several levels should have been provided - i.e., when positive statement was answered "yes", the opportunity to mark "yes" as Seldom, Frequently, Always or some such degrees of performance should have been provided; (3) other factors not included on the performance scale may be the discriminating factors in success of teachers of vocational agriculture - i.e., no information was gathered on the teacher regarding his personality traits and personal habits, except by implication in some areas of performance; and (4) raters may object to saying an item describes a teacher when the item is negative. They

may have justified marking a majority of items positive by rationalizing that the item describes the teacher "sometimes" - getting back to degree of performance rather than absolute performance in terms of "yes" or "no".

Evidence will be presented later to the effect that the 62 teachers studied are in some respects a rather superior group. This evidence will uphold the probable cause listed first for the skewed distribution of performance scores.

Relationship of Pre-teaching Characteristics on Student Profile to Average Performance Scores of Teachers of Vocational Agriculture

Since this part of the presentation begins the study of relationships of pre-teaching characteristics to performance, it appears logical to first present data regarding the distribution of profile factors. Such a presentation will indicate the nature of the group being studied in terms of their scholastic and professional ability and their farming background and interests. When this is done, consideration will be given to the relationship of pre-teaching characteristics to average performance scores, then to subsectional areas of performance.

TABLE XXI

SUMMARY OF THE RANGES, MEDIANS AND ARITHMETIC MEANS OF SCORES ON SUBSECTIONAL PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE*

Subsectional Area of Performance	Range of Scores	Median Score	Arithmetic Mean	Teachers Scoring Above A.M.	Percent Scoring Above A.M.	Teachers Scoring Below A.M.	Percent Scoring Below A.M.
A	123.4	98.9	90.5	46	74.2	16	25.8
B	95.5	98.4	88.8	44	70.9	18	29.1
C	138.8	98.0	84.6	42	67.7	20	32.3
D	46.1	99.4	95.3	50	80.6	12	19.4
E	137.7	98.0	88.6	49	79.0	13	21.0
F	149.2	99.5	94.4	52	83.8	10	16.2
G	200	97.7	88.2	39	72.2	15	27.8
H	101.2	99.6	95.2	54	87.1	8	12.9
I	93.3	99.4	96.2	51	82.2	11	17.8
J	40.4	98.5	95.4	37	75.5	12	24.5
K	50	98.7	96.0	53	85.4	9	14.6
Ave. score	90.1	96.4	92.0	51	82.2	11	17.8

*Abbreviation "A.M." reprents "Arithmetic Mean."

Distribution of Profile Factors:

Records of ACE Psychological Test scores were found for 52 of the 62 teachers studied. The scores are reported by deciles on the student profile and were thus studied in these terms. It was found that 22 teachers had scores between the first and third deciles. This represented 42.3 percent of the total. Twenty, or 38.4 percent, had scores between the fourth and seventh deciles. However, only 10, or 19.3 percent, had scores as high as the eighth to the tenth deciles.

Of the same 52 teachers on whom scores were reported, 19, or 36.5 percent, had scores between the first and third deciles on Reading Comprehension scores. Twenty-five, or 48.1 percent, had scores between the fourth and seventh deciles; but only 8, or 15.4 percent, had scores between the eighth and tenth deciles.

It is interesting to compare Clark's findings[4] to those of the present study. Clark reported that 34.0 percent of teachers who had left the field had ACE test scores between the first and third deciles as compared to 44.5 percent of the teachers who remained in the field. This latter percentage is very close to the 42.3 percent found for the present group. He also found that 40.4 percent of the teachers leaving scored between the fourth and seventh deciles as

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[4] Infra, p. 32.

compared to only 33.3 of those remaining. The latter percentage is comparable to the 38.4 percent found in this study. Likewise, he found that 25.6 percent of those leaving teaching scored between the eighth and tenth deciles as compared to 22.2 percent of the teachers remaining in the field. In the present study, 19.3 percent of the teachers scored in this top decile grouping. In both cases, there seems to be a negative selection factor in operation when considering ACE scores only.

Data on mechanical index for the teachers included were very incomplete. Records could be found for only five teachers. This was an insufficient number on which to base any relationship. Three teachers that scored above average on mechanical index had average performance scores between 92.6 and 97.5. However, one teacher scoring below average on mechanical index scored above 97.6 on average performance. In the opposite extreme, another teacher, who scored above average in mechanical index, had an average performance score below 77.5.

Thirty-six, or 61.0 percent, of 59 teachers had honor-point ratios the first year in college between 1.7 and 2.2; 18, or 30.5 percent, between 2.3 and 2.8; and five, or 8.5 percent, between 2.9 and 3.4. No teachers had honor-point ratios above 3.5 for the first year in college. Compared to this, the honor-point ratio of these same teachers for the second year in college was somewhat better.

Twenty-seven, or 45.7 percent, had honor-point ratios the second year between 1.7 and 2.2; 22, or 37.2 percent, between 2.3 and 2.8; nine, or 15.2 percent had honor-point ratios between 2.9 and 3.4. Only one teacher had an honor-point ratio the sophomore year above 3.5. A higher honor-point ratio was found for the 59 teachers during their third year in college. Only 21, or 35.6 percent, had honor-point ratios between 1.7 and 2.2 for the third year; 30, or 50.8 percent, had ratios between 2.3 and 2.8; six, or 10.1 percent, had ratios between 2.9 and 3.4; and two, or 3.5 percent, had honor-point ratios between 3.5 and four. There is evidence that the honor-point ratios of these 59 teachers increased slightly from one year to another.

Records of 53 teachers show that 25, or 47.1 percent, had honor-point ratios for the "Five Basics" below 2.2; 15, or 28.4 percent had ratios between 2.3 and 2.8; and 13, or 24.5 percent had honor-point ratios for the "Five Basics" above 2.9. Actually, four of the latter group had honor-point ratios above 3.5.

"Basic English" was studied by itself in relationship to pre-teaching characteristics. Records of 51 teachers show that four, or 7.8 percent, had honor-point ratios on "Basic English" below 1.9; 32, or 62.7 percent, had honor-point ratios between 2.0 and 2.9; and 15, or 29.5 percent had honor-point ratios above three. All honor-point ratios are based upon a system which allows four points for a grade of "A", three points for a "B", two points for a

"C", and one point for a "D". There were two reasons why records could be found for only 53 and 51 teachers, respectively, for basic courses: several teachers were transfer students originally and requirements were waived and records were just not available on some.

Nine teachers, or 15.8 percent of 57 teachers, received a mark of "A" for Education 202; 26, or 45.6 percent, received "B"; and 22, or 38.6 percent received "C". No teacher received a mark of "D" for Education 202.

Three teachers, or 5.3 percent of 56 teachers, received a mark of "A" for Psychology 201; 14, or 25.2 percent received "B"; 33, or 58.9 percent, received "C"; and six, or 10.6 percent, received "D".

Five teachers, or 8.7 percent of 57 teachers, received a mark of "A" for Education 207; 29, or 50.8 percent, received "B"; 21, or 36.8 percent, received "C"; and two, or 3.7 percent, received "D".

Records of the 62 teachers tend to show that teachers generally receive higher marks in courses in their major than in other professional courses. For example, 15, or 24.2 percent of the teachers, received a mark of "A" for Education 305 which is the introductory agricultural education course; 33, or 53.2 percent received "B"; and only 14, or 22.6 percent received "C". No teacher received a "D" for Education 305.

Regarding the tested interests of teachers, it was found that only five, or 8.9 percent, of 56 teachers had rated interests of "B" for "interests of teachers of vocational agriculture." This rating means that these teachers probably have interests of the criterion group of successful teachers of vocational agriculture. Ninety-one and one-tenth percent, or 51, of the 56 teachers had rated interests of "A". This rating means that these teachers have the interests of the criterion group of successful teachers. No teachers had rated "interests of a teacher of vocational agriculture" of "C". Records were not found for six teachers.

Data of "Teaching Satisfaction" ratings for 51 teachers show that 50, or 98 percent, rated "A" and only one rated "B". These ratings for "Teaching Satisfaction" indicate that this group of teachers had interests of successful teachers who were well satisfied with their work and their jobs. No teachers had rated interests which would indicate indifference or dissatisfaction with their job and work.

Data of "Interests of a Farmer (Strong)" for 56 teachers show that only six, or 8.9 percent, had rated interests of "B" and 50, or 91.1 percent, had rated interests of "A". Records on interests of a farmer were not found for six teachers. However, it can be seen that this group of teachers have rated interests comparable to the criterion group of experienced, successful teachers of vocational agriculture.

Records for 60 teachers were found for the amount of their farm experience, reported in number of years. Sixteen, or 26.6, had two years of farm experience beyond the age of 15. Twenty-one, or 35 percent, had between 2.1 and three years of farm experience; and 23, or 38.4 percent, had more than 3.1 years of farm experience. Therefore, approximately three-fourths of the teachers had more than 2.1 years of farm experience.

Another aspect of farm experience is the quality of that experience. The scope and variety of farm experience for 61 teachers were graded by teacher educators according to an established system. The mark received by each teacher is recorded as "Coverage of Farm Experience." It was found that six teachers, or 9.8 percent, received a mark between one and 1.9 for coverage of farm experience; when one point represents a mark of "D", two points a "C", three points a "B" and four points an "A". Thirty-four, or 55.7 percent of the teachers, received scores between two and 2.9; and 21, or 35.7 percent, received scores above three. Of the latter group of 21, only four received a mark of four. From this data, it can be seen that the teachers included have average to better coverage of farm experience, when a mark of "C" or two points is denoted as being average. Actually, the group is above average on this basis.

Only 29 of the 62 teachers included had been members of the Future Farmers of America. Three had received the "American Farmer" degree rank; two had advanced to the rank of "State Farmer"; 20 had

reached the rank of "Chapter Farmer"; and four had only become "Greenhands."

Similarly, only 38 of the 62 teachers had been enrolled in high-school agriculture. Of those who had, 10, or 26.3 percent, received only one year of instruction; eight, or 21.0 percent, were enrolled for two years; 12, or 31.6 percent, were enrolled for three years; and eight, or 21.0 percent, received four years of instruction in high-school agriculture.

Thirty of the 62 teachers were previously members of a 4-H Club. Nine, or 30.0 percent, had been members for only one-half to two years; eight, or 26.7 percent, were members for 2.1 to three years; three, or 10 percent, were members for 3.1 years to four years; and 10, or 33.3 percent, were members for more than 4.1 years.

Records of 58 of the teachers show that only one teacher had an average mark in "100-200" Agricultural Courses below an honor-point ratio of 1.9. Thirty-nine teachers, or 68.9 percent, had honor-point ratios between two and 2.9; and 18, or 31.0 percent, had honor-point ratios above three on these technical agricultural courses. Assuming a "C", or two-point ratio, to be average, there is evidence again that this group of teachers is somewhat above average for this profile factor.

Each of the 62 teachers were assigned a composite of instructors' ratings preceding student teaching. This composite rating by the instructors in agricultural education represented the instructors'

opinion of the potential teaching ability of each prospective teacher at this level in the training program. Data show that 12, or 19.3 percent of the teachers, were rated "Excellent"; 43, or 69.3 percent, were rated "Acceptable"; five, or 8.1 percent, were rated "Doubtful"; and two, or 3.3 percent, were rated "Unsatisfactory." No teachers were rated "Superior" by the composite of instructors' ratings at this level in college.

The only other factor being considered is student-teaching marks. Student-teaching marks were available for 61 of the teachers. Of this group, three, or 4.9 percent, received student-teaching marks of "AA"; 10, or 16.4 percent, received "AB"; 34, or 55.7 percent, received "BB"; nine, or 14.7 percent, received "BC"; and only five, or 8.2 percent, received "CC" on student teaching.

Determination of Superiority of Group:

Data on the distribution of profile factors of the 62 teachers seem to indicate that in many respects a superior group of teachers is being studied. Since having such teachers would affect the probability of getting any significant relationships between pre-teaching characteristics on the student profile and performance in the field, the necessity of determining whether the group is superior or not was evident. Since several investigators have found more significant relationships between student-teaching marks and performance in the field than for any other factors, further analyses were

made on student-teaching marks. To do this, it was necessary to know the total number of teachers trained for the period being covered. In Table V, the total of persons trained is given with the number not now in vocational agriculture and the number still in the field of vocational agriculture.

During this same period, four persons did not qualify as teachers of vocational agriculture since they made "DD" on student-teaching experiences. Of the 86 persons trained but not now in teaching, records could not be found for four. A comparison of the group not in the field of vocational agriculture and the 62 teachers being studied and in the field when the study was conducted appeared as the next logical step.

An analyses of the two groups should perhaps be preceded by two important questions. Has a selection factor already eliminated the potentially poor performers from the field of vocational agriculture teaching? What do the data show between those in teaching vocational agriculture and ones not in teaching vocational agriculture?

Of the 82 persons trained, but not in teaching vocational agriculture, three, or 3.6 percent, received marks of "AA" for student teaching; nine, or 10.9 percent, received marks of "AB"; 25, or 30.4 percent, received marks of "BB"; 25, or 30.4 percent, received marks also of "BC"; and 20, or 24.4 percent, received marks of "CC" on their student-teaching experiences. By simple comparison

of student-teaching marks, it can be seen that the 62 teachers of vocational agriculture had much higher marks on student-teaching performance than the 82 persons who dropped out or never entered the field of teaching vocational agriculture. There is statistical proof that this fact is significant and that the 62 teachers are a superior group of teachers, based on this evidence.

To establish statistical evidence that a selection factor was in operation and that a superior group of teachers was studied, it was necessary to compute the 95 percent confidence limits of the various percentages of the two groups at each level of student-teaching performance.[5] The 95 percent confidence limits for the 24.4 percent of graduates making "CC" on student teaching and not in vocational agriculture teaching are 33.6 percent and 15.2 percent. The 95 percent confidence limits for the 8.2 percent of graduates receiving "CC" on student teaching and are now teaching vocational agriculture are 15.1 percent and 1.4 percent. The fact that the confidence limits do not overlap means that the difference between the two percentages is significant beyond the .05 level. This upholds the hypothesis that a selection factor has already taken place since more persons receiving "CC" on student teaching drop from the field of vocational agriculture than ones that remain. From this, it would be expected that the potentially low performing

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[5] Hagood and Price, op. cit., p. 367.

teachers have already dropped out, leaving a highly selective and homogeneous group of potentially good performing teachers.

The 95 percent confidence limits for the 54.9 percent of graduates making "BC" or "CC" on student teaching and not in vocational agriculture teaching are 65.4 percent and 44.4 percent. The 95 percent confidence limits for the 22.9 percent of graduates making "BC" or "CC" on student teaching and who are now teaching vocational agriculture are 33.2 percent and 12.6 percent. The fact that the confidence limits do not overlap means that the difference between the two is significant beyond the .05 level. More persons making "BC" or "CC" on student teaching drop from teaching or never enter teaching than do ones making "BC" or "CC" and who remain in teaching. This finding supports the belief that a superior group of teachers remained in the field and potentially poorer teachers, in terms of performance, dropped from the field.

Slightly over three-fourths of the 62 teachers studied made "BB" or above on student-teaching performance. The confidence limits for this 77.0 percent making "BB" or above and remaining in teaching vocational agriculture are 86.8 percent and 67.2 percent. The 95 percent confidence limits for the 45.1 percent making "BB" or above on student teaching and not remaining in vocational agriculture are 55.6 percent and 34.5 percent. The fact that the confidence limits do not overlap means that the difference between the two is significant beyond the .05 level. This is further statistical evidence that a

superior group of teachers was studied.

Whether having this superior group of teachers will influence the relationships between pre-teaching characteristics and subsequent performance or not cannot be determined at this point. The hypothesis is that it will influence the relationship. It is suggested that performance scores will tend to be high and closely related, making it difficult to establish statistically significant relationships between pre-teaching characteristics and performance as measured.

Relationship of Pre-teaching Factors to Average Performance:

Since it has been established that in several respects the 62 teachers being studied were a superior group, consideration will be given first to the relationship of their pre-teaching characteristics on the student profile to their average performance scores. A summary of the relationships of average performance to each pre-teaching characteristic is presented in Table XXII. The test of Chi square[6] was used to determine if there were any significant relationships between average performance and pre-teaching characteristics. It can be seen that by this test, no significant relationships were found at the five-percent level. However, of the 52 teachers on whom records were available on the ACE Psychological examination, five had average performance scores below 77.5. Three of these had

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[6] Ibid., p. 365.

ACE scores between the fourth and seventh deciles, and two had ACE scores between the eighth and tenth deciles. This same type relationship was found for the five teachers on "Reading Comprehension" scores. In comparison to these findings, Rolfe found no relationship ($r = .10$) between ACE scores and teaching success.[7] However, La Duke found ACE scores correlated .61 to teaching efficiency.[8]

Of the five teachers scoring below 77.5 on average performance, four had honor-point ratios below 2.2 for the first year in college, and one had an honor-point ratio between 2.3 and 2.8. Only one teacher had an honor-point ratio the second year in college above 3.5 and he had a perfect score on average performance in the field. Three teachers having honor-point ratios the second year between 2.3 and 2.8 had average performance scores below 77.5, and two teachers with honor-point ratio between 1.7 and 2.2 also had performance scores below 77.5. The two teachers with honor-point ratios the third year above 3.5 both had perfect average performance scores. Four teachers of 53 had honor-point ratios in the "Five Basics" above 3.5; all four had average performance scores above 97.6. These findings are in agreement with those of Leavitt[9] and

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[7] Infra, p. 31.

[8] Infra, p. 58.

[9] Infra, p. 56.

Sutherland[10] who reported little relationship between grade-point average and success in teaching.

Of five teachers scoring below 77.5 on average performance, three received "B" for Education 202 and two received "C". It was found that 55.5 percent of teachers making "A" for Education 202 scored above 97.6 on average performance compared to 40.9 percent making "C" and scoring above 97.6 on average performance. The 95 percent confidence limits for the 55.5 percent are 87.8 percent and 23.2. The confidence limits for the 40.9 percent are 61.2 and 20.6. The fact that the confidence limits overlap means that the difference between the two is not significant at the five-percent level.

Five teachers of 59 scored below 77.5 on average performance; three received "C" on Psychology 201 and two made "D" on this course. Of the same group, one received a mark of "B" in Education 207 and four received a mark of "C". Six teachers of the total 62 scored below 77.5 on average performance; one received a mark of "A" on Education 305 and five received marks of "B".

It was previously noted that 51 of 56 teachers had rated interests of "A" for a teacher of vocational agriculture and only five had rated interests of "B" on this scale. It was found that over three-fourths of the teachers rated "A" scored above 92.6 on

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[10] Infra, p. 69.

average performance. Only 21.6 percent of teachers with rated "A" interests scored below 92.5. The arithmetic mean for average performance was 92.0. The 95 percent confidence limits for the 78.4 percent rated "A" and scoring above 92.6 are 89.6 and 67.2, and the confidence limits for the 21.6 percent are 32.8 and 10.4. As these limits do not overlap, they are significantly different at the five-percent level. On this basis it may be assumed that teachers with "A" rated interests score statistically above the arithmetic mean for average teacher performance. However, as some teachers with rated interests of "A" score below average, it may be theorized that other factors are reducing performance and over-riding the importance of rated interests. The fact that some teachers with questionable interests, rated "B", score high on performance may cause one to think that the lack of high interest may be compensated by other factors and thereby result in high performance. While the findings here are not conclusive, it is of interest to note that Seagrove discovered a correlation of only .08 between the Strong Vocational Interest and teaching success.[11] Ullman found that teaching interests correlated -.05 with teaching success.[12]

Since it was found that 50 of 51 teachers had rated "A" on "Teaching Satisfaction", it was impossible to establish any statistical

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[11] Infra, p. 60.

[12] Infra, p. 54.

difference between performance and rated levels of "Teaching Satisfaction." It was found, however, that over four-fifths (82 percent) of teachers rated "A" scored above 92.6 on average performance. Only 18 percent rated "A" scored below 92.5. Only one teacher was rated "B" on "Teaching Satisfaction" and he had an average performance above 92.6. On the basis of the criterion group of teachers, it can be said that teachers studied have "Teaching Satisfaction" ratings and "interests of teachers of vocational agriculture" comparable to successful teachers. They also scored high on average total performance. Based on this evidence, it is suspected that high interests are closely related to high performance, recognizing that other factors may infrequently partially discount high interests and cause low performance.

Similarly, it was found that 78 percent of teachers with "A" rated "Interests of a Farmer" scored above 92.6 on average performance. Only 22 percent rated "A" scored below 92.5. These percentages are statistically different from one another. From this, is is surmised that high rated interests of a farmer are associated with high average performance. Of the six teachers with interests rated "B", two scored above 97.6 and four scored between 92.6 and 97.5 on average performance. Here again, it may be that other factors than interests cause below average performance for some teachers with high-rated interests. It is believed that further refinements need to be made for the three interest scales studied to more sharply

differentiate and predict between teachers with high-rated interests.

Data compiled for 60 teachers show that eight teachers had above 4.1 years of farm experience; three of the eight scored above 97.6 on average performance; three scored between 92.6 and 97.5; and two scored below 77.5 on average performance. Of four teachers receiving a mark of "A" for their coverage (quality) of farm experience, one scored above 97.6 on performance; two scored between 92.6 and 97.5; and one scored below 77.5.

Since only 29 teachers had been members of the Future Farmers of America, the opportunity to compare a group not having this profile factor presented itself. Of the group having been in the Future Farmers of America, 10, or 34.5 percent, scored above 97.6 on average performance; 12, or 41.4 percent, scored between 92.6 and 97.5; and seven, or 24.1 percent, scored below 92.5. Thirty-three teachers had not been members of the Future Farmers of America. Sixteen, or 48.5 percent, of this group scored above 97.6 in average performance; 11, or 33.3 percent, scored between 92.6 and 97.5; and six, or 21.2 percent, scored below 92.5 on average performance. Three teachers - receiving a Chapter, State, and American Farmer degree, respectively - had performance scores below 77.5. Of the three teachers receiving American Farmer degrees, not one received an average performance score above 97.6. On the other hand, one former Greenhand did. By a comparison of the percentages of teachers making above 97.6 on performance, it can be seen that

membership in the Future Farmers of America did not tend to influence performance of teachers since a higher percentage of non-members scored in the top performance interval than did members. This relationship, however, is not significant. It is interesting to compare these findings with those of Efferson who found that supervisory ratings of teachers who had been Future Farmers were higher than ratings of teachers who had not been members.[13]

A similar comparison can be made of teachers enrolled in high-school agriculture and those not receiving such instruction. It might be expected that teachers who had enrolled in high-school agriculture would have better performance than teachers not having this experience. The data, however, show that 12 of the 24 teachers, 50 percent, not having high-school agriculture scored above 97.6 on performance as compared to 34.2 percent of teachers having high-school agriculture. These percentages, however, are not significantly different at the five-percent level. Seven teachers, or 29.2 percent, of the 24 not having high-school agriculture scored between 92.6 and 97.5. Eighteen, or 47.4 percent of teachers having high-school agriculture scored between 92.6 and 97.5. Five, or 20.8 percent, of the teachers not having high-school agriculture scored below 92.5; seven, or 18.4 percent, of teachers having high-school agriculture scored below 92.5 on average performance. Three teachers of the 38

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[13] Infra, p. 65.

TABLE XXII

RELATIONSHIP OF AVERAGE PERFORMANCE SCORES OF TEACHERS OF VOCATIONAL AGRICULTURE TO EACH PRE-TEACHING CHARACTERISTIC ON THE STUDENT PROFILE

Pre-Teaching Characteristic	Number of Individuals Chi square based upon	Chi square X^2	Degrees of Freedom
ACE Intelligence	52	2.35	4
Reading Comprehension	52	7.27	4
Honor-Point Ratio First Year	59	1.73	4
Honor-Point Ratio Second Year	59	3.97	4
Honor-Point Ratio Third Year	59	3.03	4
Five Basics	53	2.58	4
Basic English	51	2.17	4
Education 202 Grade	57	1.50	4
Psychology 201 Grade	56	10.43	6
Education 207 Grade	57	8.41	6
Education 305 Grade	62	1.52	4
Vo-Ag. Teacher's Interest	56	4.12	2
Teaching Satisfaction	51	1.70	20
Interests of a Farmer (Strong)	56	3.05	2
Years (Amt.) Farm Experience	60	1.07	4

Pre-Teaching Characteristic	Number of Individuals Chi square based upon	Chi square χ^2	Degrees of Freedom
Coverage of Farm Experience	61	6.11	4
F.F.A. Rank	29	3.79	6
Years of H.S. Agriculture	38	2.03	6
Years of 4-H Club Membership	30	7.56	6
Ave. Mark in "100-200" Agr. Courses	58	1.46	4
Instructors' Rating (Composite)	62	6.49	6
Student-Teaching Marks	61	7.52	8

*Significant at the five-percent level with indicated degrees of freedom.

having high-school agriculture had performance scores below 77.5; two of these had four years of agriculture and one had only one year of high-school agriculture.

Thirty-six and six-tenths percent of the teachers who were former members of a 4-H Club scored above 97.6 on performance as compared to 43.7 percent of teachers not belonging to a 4-H Club. Fifty percent of former 4-H Club members scored between 92.6 and 97.5;

and 13.3 percent scored below 92.5. Twenty-eight and one-tenth percent of teachers not belonging scored between 92.6 and 97.5; and 22.1 percent scored below 92.5. There is some evidence here that teachers scoring low on performance tend more often to be persons not belonging to a 4-H Club. The percentages, however, are not statistically different since they are based on small numbers.

Of six teachers scoring below 77.5 on average performance, two had received a rating of "Excellent" by the composite of instructors' rating; three had been rated "Acceptable" and one as "Doubtful." It is possible that at the junior-class level teacher educators had not had adequate time to effectively observe and evaluate future potential performance of each prospective teacher. On the basis of the evidence presented, the validity of instructors' ratings of prospective teachers at their junior level appears questionable.

Comparison of "Top" and "Bottom" Groups of Teachers:

It was decided that a comparison of a "top" and "bottom" group of teachers on average performance might have some merit. Eight top teachers and the eight bottom teachers on average performance were arbitrarily selected for this comparison on the profile factors. The average scores for each criterion group for several pre-teaching characteristics are presented in Table XXIII. Included in the table are those factors with scores that could be averaged. However, rank

in the Future Farmers of America of America could not be averaged. Three teachers in each group (top and bottom) had not been members. Three of the top teachers had ranks of "Chapter Farmer" and one was a "Greenhand." Of the four teachers in the bottom group that had been members of the Future Farmers organization, one each had been a "Greenhand", "Chapter Farmer", and "State Farmer" and "American Farmer." Two teachers in the top group had no high-school agriculture as compared to three in the bottom group. Three of the top group had had no 4-H Club experience compared to six of the bottom group who had had no 4-H Club experience.

To properly interpret the averaged scores given for the groups on instructors' rating, it is necessary to know that one point was assigned to a rating of "Unsatisfactory," two points to a rating of "Doubtful", three points to "Acceptable", four points to "Excellent" and five points to a rating of "Superior."

Since scores given in terms of deciles could not be averaged for comparison of the top and bottom group, it was necessary to determine the percentages of each group scoring above and below average on the profile factors. When this was done, it was possible to test the differences in percentages of the two groups on the remaining profile factors, excluding "interests", to determine if they were significant. Data on these factors are presented in Table XXIV.

TABLE XXIII

COMPARISON OF EIGHT TOP AND EIGHT BOTTOM TEACHERS IN PERFORMANCE ON CERTAIN AVERAGED PRE-TEACHING CHARACTERISTICS ON THE STUDENT PROFILE

Pre-Teaching Characteristic	Average Score for Top Group	Average Score for Bottom Group
Honor-Point Ratio 1st Year	2.17	2.26
Honor-Point Ratio 2nd Year	2.28	2.38
Honor-Point Ratio 3rd Year	2.44	2.48
Five Basics	2.40	2.54
Basic English	2.33	2.42
Education 202	2.87	2.85
Education 207	2.25	2.42
Psychology 201	2.25	1.85
Education 305	3.00	3.10
Instructors' Rating, Composite	3.30	3.35
Amount (Yrs.) Farm Experience	2.36	3.73
Coverage of Farm Experience	2.41	2.12
Years of High-School Agriculture	2.33	2.75
Years of 4-H Club	4.00	2.50
Ave. Mark in "100-200" Agr. Courses	2.66	2.75
Student-Teaching Marks	3.00	2.94

From the data presented in Table XXIV, the 95 percent confidence limits were computed to determine if the percentages of the top group scoring above and below average on characteristics were

TABLE XXIV

NUMBER AND PERCENT OF TOP AND BOTTOM GROUPS OF TEACHERS SCORING ABOVE AND BELOW AVERAGE ON CERTAIN PRE-TEACHING CHARACTERISTICS ON THE STUDENT PROFILE

Pre-Teaching Characteristics	Top Group				Bottom Group			
	Above Average		Below Average		Above Average		Below Average	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
ACE Intelligence Test Scores	4	50.0	4	50.0	4	57.1	3	42.9
Reading Comprehension Test Scores	3	37.5	5	62.5	6	85.7	1	14.3

statistically significant from the bottom group doing likewise. By observation it can be seen that the percentage differences for the top and bottom groups on ACE Intelligence test scores are not significantly different. The confidence limits computed for percentages on Reading Comprehension test scores overlapped and were therefore not significant at the five-percent level. This is true even though the percent of the bottom group scoring above average on Reading Comprehension appears much greater than the percent of the

top group scoring above average.

It is interesting that the top and bottom groups of teachers respectively had "A" rated interests for "Interests of a Teacher of Vocational Agriculture", "Teaching Satisfaction", and "Interests of a Farmer." There were no teachers in either group that were rated "B" or "C" on the interest scales being studied. A rating of "A" indicates that both groups have interests of successful teachers of vocational agriculture. On the basis of this evidence, there is no apparent relationship between rated interests and the performance levels of the selected eight "top" and "bottom" teachers. There may be factors other than "interests" contributing to good and poor performance of the two groups.

Relationship of Certain Pre-Teaching Scholastic Ability Scores to Selected Areas of Performance of Teachers of Vocational Agriculture

Selected areas of performance were studied in relationship to ACE Intelligence test scores of teachers. These relationships are presented in Table XXV. The only significant relationship at the five-percent level by the test of Chi square was ACE scores related to "Working with People in Community." However, the importance of this relationship is that it is negative. This is evidenced by the fact that four teachers with ACE scores above the

eighth decile scored below 82.5 on performance in this area, whereas no teachers having ACE scores below the third decile scored as low as 82.5. Actually, 17 teachers of 22 with ACE scores below the third decile scored above 97.6 on this area of performance.

There may be several possible reasons for this negative relationship. It may be possible that the teacher with less intelligence knows his shortcomings and compensates for his lack of measured intelligence by working harder to make his teaching a success. The persons who score higher on the ACE may think that they will be a "success" without any effort and as a result have poorer quality teaching performance than a lesser intelligent individual. On the other hand, it might be that the "bright" teachers are beyond the mass of people; thus isolating themselves; whereas, the average teacher is working in the realm of the mass and being more nearly like them can work with them better. It is also possible that a non-language or mechanical ability test would show that the intelligence factor is not actually different for a majority of the individuals being studied. These possibilities are only projections of thought and are not based on the findings.

In Table XXVI, the relationship of Reading Comprehension test scores and two selected areas of performance is presented. No significant relationships were found between the selected areas of performance and test scores for Reading Comprehension.

TABLE XXV

RELATIONSHIP OF ACE INTELLIGENCE TEST SCORES TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Area of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	53	12.71*	4
Sec. B - "Maintaining Professional Standards and Relationships"	53	5.07	4
Sec. C - "Planning and Conducting General Activities"	53	4.00	4
Sec. E - "Utilizing Acceptable Methods of Teaching"	53	7.97	4
Sec. F - "Conducting Programs with All-Day Students"	53	8.14	4
Sec. G - "Conducting Programs with Young and Adult Farmers"	46	4.88	4

*Significantly negative relationship at the five-percent level with the indicated degrees of freedom.

TABLE XXVI

RELATIONSHIP OF READING COMPREHENSION TEST SCORES TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Area of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. B - "Maintaining Professional Standards and Relationships"	52	7.31	4
Sec. C - "Planning and Conducting General Activities"	52	7.41	4

*Significant at the five-percent level with indicated degrees of freedom.

From data presented, it can be surmised that scholastic ability as measured bears little relationship to the selected areas of performance of teachers of agriculture. Only one of eight relationships was significant at the five-percent level and that relationship was negative. The relationship between ACE scores and performance in "Conducting Programs with Young and Adult Farmers" was positive but not at a significant level.

Relationship of Certain Measures of Scholastic Achievement to Selected Areas of Performance of Teachers of Vocational Agriculture

The measures of scholastic achievement studied in relationship to performance in this section are: honor-point ratio third year in college, "Five Basics" and "Basic English." In Table XXVII, data are presented regarding the relationship of achievement measured by honor-point ratio to performance in five selected areas. No significant relationships were found; however, "Planning and Conducting General Activities" had the highest positive relationship to honor-point ratio. In comparison to these findings, Stuit found that scholastic success correlated .31 to success in teaching.(14)

It was found, that of two teachers having honor-point ratios the third year above 3.5, one had a performance score above 97.6 on "Maintaining Professional Standards and Relationships", and one scored between 72.6 and 97.5. These same individuals both scored above 97.6 on "Planning and Conducting General Activities."

Raters were unable to evaluate performance of two teachers in "Conducting Programs with Young and Adult Farmers." Six teachers were not evaluated on this area of performance since they were not conduct-

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14 Infra, p. 60.

ing either young-farmer or adult-farmer classes. Four of these six had honor-point ratios the third year in college between 2.3 and 2.8; the other two had honor-point ratios between 1.7 and 2.2. While this finding should not be over-generalized, there is indication that persons with high honor-point ratios more often conducted programs with out-of-school groups than persons with low honor-point ratios.

The relationship of the "Five Basics" to two areas of performance was tested by Chi square. It was found that the Chi-square value computed between performance in "Working with People in Community" and "Five Basics" with four degrees of freedom was 8.39. This Chi square is not significant at the five-percent level; it is, however, significant at the ten-percent level. Of four teachers with honor-point ratios for "Five Basics" above 3.5, all had performance scores on the section above 97.6.

The Chi square computed between performance in "Maintaining Professional Standards and Relationships" and the "Five Basics" with four degrees of freedom was 10.30. This Chi square is significant at the five-percent level. However, the relationship is negative. This is substantiated by the fact that 66.6 percent of persons with an honor-point ratio below 2.2 on "Five Basics" scored above 97.6 on performance as compared to only 50 percent with honor-point ratios above 2.9.

TABLE XXVII

RELATIONSHIP OF SCHOLASTIC ACHIEVEMENT (HONOR-POINT RATIO THIRD YEAR IN COLLEGE) TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Area of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. B - "Maintaining Professional Standards and Relationships"	59	1.22	4
Sec. C - "Planning and Conducting General Activities"	59	6.80	4
Sec. E - "Utilizing Acceptable Methods of Teaching"	59	1.83	4
Sec. F - "Conducting Programs with All-Day Students"	59	1.63	4
Sec. G - "Conducting Programs with Young and Adult Farmers"	51	4.22	4

*Significant at the five-percent level with indicated degrees of freedom.

The Chi square computed between performance in "Working with People in Community" and honor-point ratio in "Basic English" with four degrees of freedom was 4.43. It is not significant at the five-percent level. Only one teacher of 51 had an honor-point

ratio of four for "Basic English", and his performance score on this area of performance was below 82.5. In comparison to this, four teachers with honor-point ratios below 1.9 scored 97.6 or better on this area of performance. However, only 61.3 percent of teachers with honor-point ratios between 2.0 and 2.9 scored above 97.6 as compared to 75 percent of the teachers with honor-point ratios for "Basic English" between 3.0 and 3.9.

Relationship of Achievement in Professional Course Work to Selected Areas of Performance of Teachers of Vocational Agriculture

It appears that some relationship should be found between achievement in professional course work and performance under normal conditions. This would be assuming that a normal distribution of scores on performance and achievement on course work were available for study and that teachers studied were not already a superior group. However, as a superior group is being studied, will there be any significant relationships?

Data compiled in Table XXVIII show no significant relationship between achievement in Education 305 and four selected areas of performance. No teacher had received a mark of "D" for Education 305. It was found that a larger percentage of those scoring below 87.5 on "Conducting Programs with Young and Adult Farmers" made "A's" in Education 305 than those making "C's" in Education 305; these percentages were 28.5 and 8.3, respectively. However, the largest

percentage (32.1) of those with performance below 87.5 made "B's" for Education 305. In comparison, Ullman found that professional marks correlated low with teaching success.(15)

Findings that are presented in Table XXIX indicate that Psychology 201 had a significant relationship to performance in "Working with People in Community." However, the other two relationships reported are not significant at the five-percent level. Since the study of Psychology 201 is concerned with understanding the phenomena of learning and motivation, it is encouraging to find that performance of teachers in working with people in rural communities is positively related to marks in Psychology 201.

The Chi-square value computed for the relationship between Education 207 and performance in"Utilizing Acceptable Methods of Teaching" of 57 teachers with six degrees of freedom was 8.37. This Chi square is not significant at the five-percent level of significance. It was of interest to note that 48.6 percent of the teachers making "B" or higher on Education 207 scored above 97.6 on this area of performance, and 70.0 percent of the teachers making "C" or lower on Education 207 scored above 97.6 on "Utilizing Acceptable Methods of Teaching."

The Chi-square value computed between Education 202 and performance of 57 teachers in "Utilizing Acceptable Methods of Teach-

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[15] Infra, p. 54.

ing" was 3.47 which was not significant at the five-percent level with four degrees of freedom.

TABLE XXVIII

RELATIONSHIP OF ACHIEVEMENT IN EDUCATION 305 TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. B - "Maintaining Professional Standards and Relationships"	62	2.13	4
Sec. E - "Utilizing Acceptable Methods of Teaching"	62	6.55	4
Sec. F - "Conducting Programs with All-Day Students"	62	5.67	4
Sec. G - "Conducting Programs with Young and Adult Farmers"	54	7.33	4

*Significant at the five-percent level with indicated degrees of freedom.

To summarize the findings of relationships of achievement in professional courses to selected areas of performance, it can be said that only one of the Chi squares computed was significant at

the five-percent level. This significant positive relationship was between achievement in Psychology 201 and performance in "Working with People in Community."

TABLE XXIX

RELATIONSHIP OF ACHIEVEMENT IN PSYCHOLOGY 201 TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square χ^2	Degrees of Freedom
Sec. A - "Working with People in Community"	56	12.83*	4
Sec. B - "Maintaining Professional Standards and Relationships"	56	2.65	6
Sec. E - "Utilizing Acceptable Methods of Teaching"	56	3.71	6

*Significant at five-percent level with indicated degrees of freedom.

Relationship of Certain Measured Interests to Selected Areas of Performance of Teachers of Vocational Agriculture

Does having interests of a teacher of vocational agriculture mean that a person will necessarily be a successful teacher? Is teaching satisfaction associated with being a successful teacher? Does

having interests of a farmer comparable to the criterion group of successful teachers associate itself with high performance in working with farm people? These are the questions that will be studied here.

Data compiled on the relationship of interests of a teacher to performance are presented in Table XXX. The Chi squares computed were not significant at the five-percent level. This does not mean that there was no association, but merely indicates that the relationships were not statistically significant. Approximately 90 percent of the teachers studied had rated interests of "A" and a large majority of these scored above 97.6 on performance. It is surmised from this that having interests of the criterion group of successful teachers of vocational agriculture is associated with high performance. However, it must also be recognized that factors or conditions other than interests of a teacher cause performance to be lowered frequently. Evidence of this is that 68.6 percent of teachers with "A" rated interests scored above 97.6; 11.7 percent rated "A" scored between 82.6 and 97.5. Therefore, some factor or groups of factors apparently interact with or counteract interest and lower performance. Approximately the same type relationships were found between interests and other areas of performance. These findings were not unexpected since Ullman had found that teaching interests correlated insignificantly with teaching success and with

practice teaching.[16]

The relationship between interests of teacher and performance in "Utilizing Acceptable Methods of Teaching" was positive and approaching statistical significance.

It was of interest to note that, of five teachers not conducting programs with young- and adult-farmer groups, three had rated interests of "A" for a teacher of vocational agriculture and two had rated interests of "B".

Since only one teacher was rated "B" for "Teacher Satisfaction" and 50 were rated "A", it was needless to compute Chi squares between teaching satisfaction and several areas of performance. The "Teaching Satisfaction" scale, which is a subscale to "Interests of a Teacher of Vocational Agriculture" can be used only when teachers have scored "B" or "A" on the first scale. Since all teachers studied were rated "B" or above on all scales, this factor did not apply in studying teaching satisfaction ratings. Ninety-eight percent of the teachers studied had ratings of "A" for "Teaching Satisfaction." Of this group, 68 percent scored above 97.6 in "Working with People in Community"; 14 percent scored between 82.6 and 97.5; and 18 percent scored below 82.5. Approximately the same percentages were found in the three performance levels in "Maintaining Professional Standards and Relationships", "Utilizing Acceptable

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[16] Infra, p. 54.

Methods of Teaching", and "Conducting Programs with Young and/or Adult Farmers."

Of the teachers with "A" ratings for "Teaching Satisfaction", 84 percent scored above 97.6 in "Conducting Programs with All-Day Students"; 10 percent scored between 82.6 and 97.5; and only six percent scored below 82.5. Approximately the same relationships were found with performance in "Maintaining Administrative Relationships."

It can be seen that there apparently is an association between rated "Teaching Satisfaction" and performance. However, it has been noted that teachers with "A" ratings not only score high in performance, but infrequently a small number score low in performance. It is believed that other factors are reducing performance levels for these few individuals even though they have high ratings for teaching satisfaction.

There appears to be higher association between "Interests of a Farmer (Strong)" and performance than the ratings on the two previous scales. Data in Table XXXI indicate that interests of a farmer and successful performance in selected areas are closely related. It was found that 72 percent of the teachers with "A" rated interests of a farmer scored above 97.6 for performance in "Working with People in Community" as compared to 50 percent rated "B". Only 28 percent with interests rated "A" scored below 97.5 in comparison to 50 percent of those with "B" rated interests.

TABLE XXX

RELATIONSHIP OF "INTERESTS OF A TEACHER OF VOCATIONAL AGRICULTURE" TO SELECTED AREAS OF PERFORMANCE OF TEACHERS

Area of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	56	1.31	2
Sec. B - "Maintaining Professional Standards and Relationships"	56	2.00	2
Sec. E - "Utilizing Acceptable Methods of Teaching"	56	3.47	2
Sec. F - "Conducting Programs with All-Day Students"	56	1.23	2
Sec. G - "Conducting Programs with Young and/or Adult Farmers"	49	3.84	2

*Significant at the five-percent level with indicated degrees of freedom.

Similarly, it was discovered that 86 percent of teachers with "A" rated interests of a farmer scored above 97.5 in "Conducting Programs with All-Day Students" as compared to 50 percent with "B" rated interests. Only 14 percent rated "A" scored below 97.5 as compared to 50 percent rated "B."

TABLE XLXI

RELATIONSHIP OF "INTERESTS OF A FARMER (GRADE)" TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Area of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	56	9.19*	2
Sec. F - "Conducting Programs with All-Day Students"	56	11.24*	2
Sec. G - "Conducting Programs with Young and Adult Farmers"	49	5.21	2
Sec. H - "Providing On-Farm Instruction"	56	1.96	2
Sec. I - "Supervising and Developing Farming Programs"	56	1.42	2

*Significant at the five-percent level with indicated degrees of freedom.

While the two foregoing relationships were significant at the five-percent level, it was found that the Chi square computed between interests of a farmer and "Conducting Programs with Young and/or Adult Farmers" was significant at the 10 percent level. These relationships were positive in nature. Fifty-two and three-tenths percent of teachers with "A" rated interests of a farmer

scored above 97.6 in this area; 18.2 percent scored between 87.6 and 97.5; and 29.5 scored below 87.5.

Ninety percent with "A" rated interests of a farmer scored above 97.6 in "Providing On-Farm Instruction." Five of six teachers with "B" ratings scored above this level also. Only 10 percent with "A" ratings scored below 97.5 on performance in this area.

Eighty-two percent of the teachers with "A" rated interests of a farmer scored above 97.6 in "Supervising and Developing Farming Programs." All six teachers with "B" rated interests scored above 97.6.

The data presented on rated interests and teaching satisfaction appear to support the contention that high rated interests are associated closely with high performance. However, some teachers score low on performance even though they have high measured teaching satisfaction and interests. Thus, it is believed that other factors, drives, or conditions tend to reduce the importance of high interests either through compensational measures or inadequacies within the individual teacher. More study appears necessary in this area to determine these factors and their relative importance in affecting teacher performance.

Relationship of Certain Qualifications in Farming to Selected Areas of Performance of Teachers of Vocational Agriculture

There are several factors on the student profile that are related to qualifications in farming. Each is to be studied for relationships to selected areas of performance. Some questions which may precede, however, are: Does the amount and quality of farm experience affect the performance of teachers working with different age groups of farm people? Does membership in rural youth organizations and instructional programs affect performance levels? Is there any relationship between marks in technical agriculture in college and performance in the agricultural functions of a teacher of vocational agriculture?

Data regarding the amount of farm experience in relationship to selected areas of performance are presented in Table XXXII. It can be noted that two of five Chi-square values are significant at the five-percent level. This means that a positive relationship was found between the amount of farm experience and "Conducting Programs with Young and Adult Farmers." However, the significant relationship found between amount of farm experience and "Providing On-Farm Instruction" was negative. Evidence of the latter finding is that all 16 teachers with only two years of farm experience scored above 97.6 on "Providing On-Farm Instruction", but only 15 of 23 with more than 3.1 years scored above this level with four

TABLE XXXII

RELATIONSHIP OF AMOUNT OF FARM EXPERIENCE (YEARS) TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. F - "Conducting Programs with All-Day Students"	60	4.64	4
Sec. G - "Conducting Programs with Young and Adult Farmers"	52	11.09*	4
Sec. H - "Providing On-Farm Instruction"	60	9.50**	4
Sec. I - "Supervising and Developing Farming Programs"	60	5.55	4
Sec. J - "Teaching Farm Mechanics"	46	7.76	4

*Significantly positive relationship at the five-percent level with indicated degrees of freedom.
**Significantly negative relationship at the five-percent level with indicated degrees of freedom.

scoring below 72.5. Sutherland reported that farm experience was not significantly related to the success of 31 teachers studied in California.[17]

[17] Infra, p. 69.

Of six teachers with more than 4.1 years of farm experience, five had performance above 97.6 and one below 82.5 on "Conducting Programs with All-Day Students." Six teachers were reported as having no young- and adult-farmer programs. One of these had one year of farm experience, two had two and one-tenth to three years, and three had more than three and one-tenth years. It was also found that 17.4 percent (four of 23) of the teachers with more than three and one-tenth years of farm experience scored below 72.5 on "Providing On-Farm Instruction."

It was discovered that 78.2 percent of the teachers with more than three and one-tenth years of farm experience scored above 97.6 on "Supervising and Developing Farming Programs, and 17.4 percent with the same amount of farm experience scored below 87.5. In contrast, 93.7 percent of the teachers with only two years of farm experience scored above 97.6 on this same area, and no teachers scored below 87.5.

Only a slightly higher percentage of teachers with more than three and one-tenth years of farm experience scored above 97.6 on "Teaching Farm Mechanics" than did teachers with only two years of farm experience; these percentages were 82.4 and 72.7, respectively. Of the 13 teachers reported not teaching farm mechanics, four had only two years of farm experience, three had from two and one-tenth to three years, and six had three and one-tenth or more years of farm experience beyond the age of 15.

Since the amount of farm experience is not necessarily indicative of the knowledge acquired nor the quality of farm experience attained, study was also made of the relationship of the scope and variety of farm experience to selected areas of performance. Data on these findings are presented in Table XXXIII. No Chi squares computed were found to be significant at the five-percent level. It is of interest to note that, of four teachers with "A"-grade coverage of farm experience, one scored above 97.6, two between 82.6 and 97.5 and one below 82.5 on "Conducting Programs with All-Day Students." In contrast to this, all six teachers having a coverage of "D", scored above 97.6 in this area of performance.

It was found that 76.1 percent of the teachers with a farm experience coverage of "B" or better scored above 97.6 on "Providing On-Farm Instruction" as compared to 83.3 percent with a coverage of "D".

Attention is now turned to a consideration of the association between rank achieved in the Future Farmers of America and performance in areas which may be associated to such membership. Data of these relationships are presented in Table XXXIV. No significant Chi squares were found at the five-percent level. However, one Chi square computed between rank achieved and performance in "Conducting and Advising the Future Farmers of America" was found to be significant at the ten-percent level. The important fact regarding this

relationship was that it was in favor of the "Greenhand"; therefore, a negative association for degrees attained.

TABLE XXXIII

RELATIONSHIP OF COVERAGE (SCOPE AND VARIETY) OF FARM EXPERIENCE TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. F - "Conducting Programs with All-Day Students"	61	6.48	4
Sec. G - "Conducting Programs with Young and Adult Farmers"	53	3.07	4
Sec. H - "Providing On-Farm Instruction"	61	7.88	4
Sec. I - "Supervising and Developing Farming Programs"	61	1.50	4

*Significant at the five-percent level with indicated degrees of freedom.

Seventy percent of the teachers scoring above 97.6 and in the Future Farmers of America had reached the degree of "Chapter Farmer." Whereas, approximately the same percentage not in the Future Farmers of America (69.9 percent) scored above 97.6 also on "Working

with People in Community." Thirteen and eight-tenths percent of the teachers in the Future Farmers scored below 82.5 on this area of performance. In contrast, 17.8 percent of the teachers not

TABLE XXXIV

RELATIONSHIP OF RANK ACHIEVED IN THE FUTURE FARMERS OF AMERICA TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	29	6.28	6
Sec. I - "Supervising and Developing Farming Programs"	29	7.69	6
Sec. K - "Conducting and Advising the Future Farmers of America"	29	12.42	6

*Significant at the five-percent level with indicated degrees of freedom.

in the Future Farmers scored below 82.5 on this area of performance. This shows some slight favor for teachers having Future Farmers of America experience, yet it is not statistically significant.

Of the 29 teachers who were former members of the Future Farmers of America, 79.3 percent scored above 97.6 in "Supervising and Developing Farming Programs", and 10.3 percent scored below 87.5.

Of the 33 teachers not formerly in the organization, 84.8 percent scored above 97.6, and 6.1 percent scored below 87.5 on performance.

It was found that 72.4 percent of the teachers who were former Future Farmer members scored above 97.6 on "Conducting and Advising the Future Farmers of America." However, 87.8 percent of the teachers who were not former members scored above 97.6 and only three percent below 88.6 compared to 6.9 percent of the former members scoring below 88.6. These percentages are not significantly different. These findings, however, seem surprising since it would normally be expected that a person experiencing training in the Future Farmers of America would have better performance in this area than one who had no training in the area at the secondary level. Whether this finding is a result of poor experiences in the Future Farmers of America and acquiring out-of-date methods and practices by persons who had prior training is perplexing. It might be that teachers, who had no Future Farmer experiences until their college training, go into the area with open minds, ready to grasp up-to-date concepts of the Future Farmers of America in an integrated program of vocational agriculture.

Another profile factor closely related to the rank achieved in the Future Farmers of America is the years enrolled in high-school agriculture. Data regarding the relationship of years enrolled in agriculture and performance in selected areas are presented in Table XXXV. Only one of five Chi squares computed was

significant at the five-percent level. This significant relationship was found between years in agriculture and "Providing On-Farm Instruction." The important factor, however, is that the relation-

TABLE XXXV

RELATIONSHIP OF NUMBER OF YEARS ENROLLED IN HIGH-SCHOOL AGRICULTURE TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	38	2.12	6
Sec. E - "Utilizing Acceptable Methods of Teaching"	38	8.11	6
Sec. F - "Conducting Programs with All-Day Students"	38	10.65	6
Sec. H - "Providing On-Farm Instruction"	38	13.02*	6
Sec. I - "Supervising and Developing Farming Programs"	38	7.31	6

*Significantly negative relationship at the five-percent level with indicated degrees of freedom.

ship is negative, which means that teachers enrolled for only one year in agriculture had better performance than those with four years

of agriculture in high school. Only eight students with two years of training made above 97.5 in this area. Of the eight teachers who had four years of high-school agriculture, six scored 97.6 and two below 72.5 on performance in "Providing On-Farm Instruction." Of 24 teachers who had no high-school agriculture, 91.6 percent scored above 97.6, and 8.34 percent scored below 72.5 in this area. In contrast, 84.2 percent of the teachers having high-school agriculture scored above 97.6 and 5.3 percent scored below 72.5 in this area. Approximately the same percentages of teachers having high-school agriculture and teachers not having high-school agriculture scored above 97.6 on "Supervising and Developing Farming Programs." The percentages were 81.6 and 83.3 for each respective group.

Findings regarding the relationships of 4-H Club membership to selected areas of performance are presented in Table XXXVI. The Chi squares computed were not significant at the five-percent level. Only 30 teachers of the 62 being studied had formerly been members of the 4-H Club. Eighty percent of the teachers who were former members scored above 97.6 on "Working with People in Community", and 59.4 percent of the 32 teachers not former members scored above 97.6. Only 6.6 percent of the former members scored below 82.5 as compared to 25 percent of non-members. The 95 percent confidence limits for the 80 percent are 94.3 and 67.7. The 95 percent confidence limits for the 59.3 percent are 76.1 and 42.5. As these confidence limits overlap, the apparent association is proved insignificant at the

five-percent level. Of 10 teachers having more than five years of 4-H Club experience, eight had performance scores above 97.6 on

TABLE XXXVI

RELATIONSHIP OF YEARS OF 4-H CLUB MEMBERSHIP TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	30	1.53	4
Sec. H - "Providing On-Farm Instruction"	30	2.54	4
Sec. I - "Supervising and Developing Farming Programs"	30	1.25	4

*Significant at the five-percent level with indicated degrees of freedom.

"Providing On-Farm Instruction." Of six teachers having less than one year of 4-H Club, all had performance scores above 97.6. Ninety percent of the teachers who were former 4-H Club members scored above 97.6 on this area, compared to 84.5 percent of teachers who had not been 4-H Club members. Only 3.3 percent of the former members scored below 72.5 as compared to 9.4 percent of the non-members.

All 10 teachers having more than four years of 4-H Club membership scored above 97.6 on "Supervising and Developing Farming

Programs." Also, six members having less than one year of membership scored above 97.6 on this area.

The final profile factor, average mark in 100-200 agricultural courses, as related to performance is presented in Table XXXVII. The Chi squares computed were not significant at the five-percent level. However, one Chi square was found to be significant at the ten-percent level. This Chi square was computed between average marks in 100-200 agricultural courses and performance in "Teaching Farm Mechanics." The association was positive.

It was found that 88.8 percent of teachers having a "B" or better average on 100-200 agricultural courses scored above 97.6 on "Conducting Programs with All-Day Students." Only 82.5 percent of the teachers having less than a "B" average on these courses scored above 97.6 in this area.

Sixty-four and three-tenths percent of the teachers having a "B" or better average on agricultural courses scored above 97.6 on "Conducting Programs with Young and Adult Farmers." In comparison, 51.4 percent having below a "B" average scored above 97.6. Twenty-one and four-tenths percent of those having above a "B" average scored below 87.5 as compared to 22.8 percent of those having a "B" average and scoring below 87.5 on this area of performance.

There were five teachers on whom raters could base no decision regarding young- and adult-farmer programs. However, there were seven that had neither young-farmer nor adult-farmer programs. Four

TABLE XXXVII

RELATIONSHIP OF "GRADES MADE IN 100-200 AGRICULTURAL COURSES" TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. F - "Conducting Programs with All-Day Students"	59	2.11	2
Sec. I - "Conducting Programs with Young and Adult Farmers"	50	2.17	2
Sec. H - "Providing On-Farm Instruction"	58	0.99	2
Sec. I - "Supervising and Developing Farming Programs"	58	3.10	2
Sec. J - "Teaching Farm Mechanics"	44	4.95	2

*Significant at the five-percent level with indicated degrees of freedom.

of these had "D" or better average for 100-200 agricultural courses, and three had below a "D" average.

Approximately the same percentages of teachers having "B" averages or above and below "D" scored above 97.6 in "Supervising and Developing Farming Programs." These percentages were 87.5 and 90.0, respectively. Also, 6.2 percent of the teachers having a "B"

average or above scored below 97.5 as compared to 7.5 percent of the teachers having below a "B" average. These percentage differences are insignificant.

One-hundred percent of the teachers above a "B" average on 100-200 agricultural courses scored above 97.6 on performance in "Teaching Farm Mechanics." Also only one teacher had an average below "C", yet he also scored above 97.6 in this area.

There were 13 teachers who had no farm-mechanics programs. Six of these had "B" or better averages on 100-200 agricultural courses, and seven had below "B" averages on these technical agricultural courses. Whether a good record in technical agricultural courses provides confidence to teachers is not known. There may be some psychological factors involved. However, it must be recognized that from a scholastic standpoint all persons graduated and teaching are average or better since they have maintained a "C" or better all-college record. In this case, the diagnosing of any psychological factors associated to performance and scholastic records in technical course work approaches a difficult level. Such a problem is not a part of this study, but is mentioned for consideration only.

Relationship of Instructors' Ratings to Selected Areas of Performance of Teachers of Vocational Agriculture

It has previously been noted that the members of the staff in agricultural education at Michigan State College rated a majority of trainees preceding their student teaching as "Acceptable." The

rating received by each trainee at that point represented their potential as teachers as judged by their instructors. The relationships of these ratings to selected areas of performance of teachers of vocational agriculture are presented in Table XXXVIII. No teachers were rated as "Superior" preceding their student teaching. Only two of 10 Chi squares computed are significant at the five-percent level. The relationship found between instructors' rating and "Maintaining Administrative Relationships" was negative. This is explained by the fact that two teachers rated "Unsatisfactory" and five rated "Doubtful" scored above 97.6 on performance. In contrast to this, five of 12 teachers rated "Excellent" scored below 81.5 on performance. No teachers rated "Doubtful" or "Unsatisfactory" scored less than 97.6, but a total of six teachers rated "Acceptable" scored below 97.6.

Fifty-eight and two-tenths percent of the 55 teachers rated "Acceptable" or better scored above 97.6 on performance in "Utilizing Acceptable Methods of Teaching." In comparison, 42.8 percent of the teachers rated "Doubtful" or lower scored above 97.6. Fourteen and five-tenths percent of the teachers rated "Acceptable" or better scored below 87.5, and 57.1 percent of the teachers rated "Doubtful" or below scored below 87.5 in this area of performance. From these comparisons, it can be seen that the relationship between instructors' ratings of teachers and performance of teachers in this area is positive in nature.

TABLE XXXVIII

RELATIONSHIP OF INSTRUCTORS' RATINGS TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. A - "Working with People in Community"	62	3.54	6
Sec. B - "Maintaining Professional Standards and Relationships"	62	4.54	6
Sec. C - "Planning and Conducting General Activities"	62	2.27	6
Sec. D - "Maintaining Administrative Relationships"	62	12.84**	6
Sec. E - "Utilizing Acceptable Methods of Teaching"	62	12.63*	6
Sec. F - "Conducting Programs with All-Day Students"	62	4.03	6
Sec. G - "Conducting Programs with Young and Adult Farmers"	54	1.79	6
Sec. H - "Providing On-Farm Instruction"	62	2.35	6
Sec. I - "Supervising and Developing Farming Programs"	62	4.02	6
Sec. J - "Teaching Farm Mechanics"	48	1.42	4

*Significantly positive relationship at five-percent level with indicated degrees of freedom.

**Significantly negative relationship at five-percent level with indicated degrees of freedom.

Of the 14 teachers reported not conducting farm-mechanics programs, four were rated "Excellent", six were rated "Acceptable", two were rated "Doubtful" and two were rated "Unsatisfactory." By comparing the distribution of ratings of teachers who were teaching farm mechanics with the distribution of ratings of teachers not teaching farm mechanics, there was no clue as to why these 14 teachers not teaching farm mechanics did not have programs in this area. There are perhaps several reasons why they were not performin the area of farm mechanics, but these reasons were not studied.

Relationship of Student Teaching to Performance in the Field in Comparison to the Relationship of Pre-Teaching Characteristics to Student-Teaching Performance

If it can be assumed that student-teaching marks are indicative of teaching ability and performance, it then seems logical to study student-teaching marks as an aspect of performance in relationship to some pre-teaching characteristics. It is commonly believed that student-teaching marks more nearly correlate with performance than do any other pre-teaching characteristics. Several important questions arise at this point. Is there a possibility that what is measured in student-teaching performance is something different from or more complete than that measured in the present study? Can the belief be justified that the way a student teacher performs under direct guidance and super-

vision of teacher educators and supervising teachers will be approximately the performance level he will maintain when he undertakes the responsibility of a full-time teaching position with greatly reduced guidance and supervision?

Student-teaching marks are not in actuality pre-teaching characteristics, but they directly reflect performance in teaching under supervision. For this reason, they will be interpreted as marks of teaching performance, recognizing that the term "performance" as used in this study is not synonymous with performance as conceived in student teaching. In many respects, the performance measured in student teaching might be a more valid measure of actual teaching ability than that measured in this study. At least, more concentrated observation occurred preceding assignment of student-teaching marks, and personality and other factors are partially accounted for in the marks.

With the foregoing comments in mind, a logical question is: what are the relationships of student-teaching marks to performance in the field and to some pre-teaching characteristics? The relationships of student-teaching marks to selected areas of performance shall first be considered. In Table XXXIX, a summary of these relationships are presented. No Chi squares were found to be significant at the five-percent level. There are, however, some interesting relationships between marks and certain levels of performance by teachers. Of the teachers scoring above 97.6 in "Planning and Conduct-

ing General Activities", 17.6 percent made "AB" or above on student teaching, 61.7 percent made "BB", 8.8 percent made "BC", and 11.7 percent made "CC". Of those scoring below 72.5 in this area of performance, 14.2 percent made "AB" on student teaching, 64.3 percent made "BB", and 21.4 percent made "BC."

Of the six teachers reported having no young-farmer and adult-farmer programs, two received "AB" on student teaching, three received "BB" and one received "CC." It was found that no teachers making above "AB" on student teaching made less than 72.6 in "Providing On-Farm Instruction." However, four teachers making "BB" or below made less than 72.5 in this area of performance.

There were a total of 13 teachers reported having no farm-mechanics programs. Of this group, one received "AA" in student teaching, two received "AB", six received "BB", two received "BC" and two received "CC." On the basis of student-teaching grades, there is no apparent reason why these teachers were not conducting farm-mechanics programs. It is recognized, of course, that administrative approval, lack of facilities, et cetera, may be prohibiting programs for these teachers.

Of those scoring above 97.6 in "Teaching Farm Mechanics", 19.4 percent had student-teaching marks of "AB" or better, 58.3 percent received "BB", 16.6 percent received "BC" and 5.6 percent received "CC" in student teaching.

Even though there are reasons to believe that student teaching and performance are related, no significant relationships were established between the two in this study. The reason for this may be that two different aspects of performance are being measured. As previously indicated, the marks for student teaching include a partial measure of personality, attitudes and habits that were not evaluated in the present study. What relationships, then, would be expected between student-teaching marks and certain pre-teaching characteristics? A summary of these relationships is presented in Table XL. It can be noted that the 13 Chi squares computed were not significant at the five-percent level when corrected for continuity. The most significant relationships were found between student-teaching marks and both the Education 305 marks and instructors' ratings. It appears interesting that the only factors with any degree of association are those that were evaluated exclusively by the teacher-educating staff in agricultural education.

Since it was expected that student-teaching marks would have rather high relationships to many pre-teaching characteristics - and no such relationships were found for the superior group of teachers - it is thus not surprising that the relationships found between pre-teaching characteristics and subsequent performance were also very low. The selectivity factor mentioned here is the one discovered in the study of student-teaching marks of teachers in voca-

TABLE XXXIX

RELATIONSHIP OF STUDENT-TEACHING MARKS TO SELECTED AREAS OF PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Areas of Performance	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
Sec. C - "Planning and Conducting General Activities"	61	9.56	8
Sec. E - "Utilizing Acceptable Methods of Teaching"	61	4.24	8
Sec. F - "Conducting Programs with All-Day Students"	61	5.75	8
Sec. G - "Conducting Programs with Young and Adult Farmers"	53	7.10	8
Sec. H - "Providing On-Farm Instruction"	61	6.79	8
Sec. I - "Supervising and Developing Farming Programs"	61	3.22	8
Sec. J - "Teaching Farm Mechanics"	47	7.45	8

*Significant at five-percent level with indicated degrees of freedom.

tional agriculture as compared to marks of persons trained who either did not go into vocational agriculture or who dropped from

TABLE XL

RELATIONSHIPS OF SOME PRE-TEACHING CHARACTERISTICS TO STUDENT-TEACHING PERFORMANCE OF TEACHERS OF VOCATIONAL AGRICULTURE

Pre-Teaching Characteristics	Number of Teachers Studied	Chi square X^2	Degrees of Freedom
ACE Psychological Test Scores	53	4.88	8
Honor-Point Ratio Third Year in College	58	9.05	8
Education 207 Mark	57	13.68	12
Education 305 Mark	61	10.17	8
"Vo-Ag Teacher's Interests" (Strong)	55	3.98	12
"Teaching Satisfaction" Scores	50	6.64	12
"Interests of a Farmer" (Strong)	55	7.97	12
Amount (Years) of Farm Experience	60	6.93	12
Coverage of Farm Experience	61	8.51	12
Rank Achieved in Future Farmers of America	29	10.28	12
Years Enrolled in High-School Agriculture	38	4.19	8
Average Mark in 100-200 Agricultural Courses	58	8.02	8
Instructors' Rating(Composite)	61	10.69	12

*Significant at five-percent level with indicated degrees of freedom.

the field.[18]

Some of the related findings are also of interest. For example, only two teachers had honor-point ratios the third year in college above 3.5; they had student-teaching marks of "BB." The relationship between marks in Education 207 and student teaching was positive but not significant at the five-percent level.

It is of particular interest to compare the Education 305 marks to student teaching. It would perhaps be expected that a professional course in agricultural education would have a closer relationship to student teaching than any general education course. To illustrate this relationship, as well as to present the style of tables used in computing the Chi squares reported throughout the study, Table XLI is included for study. A possible reason for this positive relationship may be that teacher educators are evaluating consistently for certain objectives in the trainee and his program. Another reason may be that the same teacher educator follows a student from his Education 305 class to his student teaching. Any previous experience with the student or opinion of the student based upon past experiences might greatly influence the marks the student receives in student teaching. If the latter reason was true, there may be a continuous bias operating throughout the evaluation of groups of several individuals.

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[18] Supra, pp. 147-151.

TABLE XII

RELATIONSHIP OF MARK IN EDUCATION 305 OF 61 TEACHERS OF VOCATIONAL AGRICULTURE AND THEIR SUBSEQUENT STUDENT-TEACHING MARKS

Mark in Education 305*	Student-Teaching Marks					
	CC	BC	BB	AB	AA	Total
A		1	8	2	3	14
B	2	7	17	7		33
C	3	1	9	1		14
Total	5	9	34	10	3	61

*No teacher received a mark of "D" in Education 305.

It was surprising to find that teachers with marks of "AA" on student teaching had two to three years of farm experience. There were only three such teachers, however, and the number is too small to draw any conclusions. Sutherland[19] found this same type relationship wherein some of the teachers with the least amount of farm experience did as well or better than some teachers with a much greater amount of farm experience.

[19]Sutherland, op. cit., p. 35.

Only two teachers had a four-point ("A") average in 100-200 agricultural courses. Both made "BB" on student teaching.

It is not surprising that the relationship between student teaching and instructors' ratings was also positive. However, a study of the distribution of student-teaching marks by each level of rating would show that rating an individual and predicting his student-teaching mark would result in some very undesirable predictions. This can be seen by studying the distribution that is presented in Table XLII. It can also be seen that a large majority of the teachers being studied were rated "Acceptable" or above preceding student teaching, and that a large majority received "BB" or better on their student-teaching experiences. This further supports the contention that a superior group of teachers is being studied.

TABLE XLII

RELATIONSHIP OF "INSTRUCTORS' RATING, COMPOSITE" AND STUDENT-TEACHING PERFORMANCE OF 61 TEACHERS OF VOCATIONAL AGRICULTURE

Instructors' Rating Composite*	Student-Teaching Marks					
	CC	BC	BB	AB	AA	Total
Excellent	1	1	5	2	3	12
Acceptable	3	8	23	8		42
Doubtful			5			5
Unsatisfactory	1		1			2
Total	5	9	34	10	3	61

*No teachers were rated "Superior" at junior level in College.

A Case-Study Analysis of Five Teachers on Whom Raters Could Not Agree Consistently as to Their Teaching Performance

Of the original 88 teachers on whom ratings were secured, raters could not agree consistently on 26 as to their performance. It was felt that there was value in studying a group of these 26 to determine if there were reasons why raters could not agree on their performance. Therefore, five teachers on whom least agreement between raters was found were selected for study.

Certain information will be presented for each individual. First, the profile data for each individual will be presented. Second, performance scores will be given by the source of rating. Third, the correlation coefficients computed between raters for subsectional performance scores will be given and interpreted. Fourth, reports of visits and comments by teacher educators, state supervisors and supervising teachers concerning the individual and his program will be presented to see if their observations and experiences influenced their ratings of the individual. Finally, each case will be summarized on the basis of the information presented.

Before studying the five cases, there are several questions which should be kept in mind. These questions are: (1) Does the rating of a teacher by a teacher educator reflect the opinion gained of the student in Education 305 and his mark in this course? (2) Do comments in the report of visits indicate why teachers may

have been graded down in some areas? (3) Did the supervising teacher discover some traits that the raters did not? (4) Is there indication that these individuals had not been observed for sufficient length of time in the field to establish a definite pattern or level of performance? (5) Are there personality conflicts between rater and teacher? (6) Are there personality factors operating outside the framework of performance as measured, yet unconsciously being drawn into and reflected in the performance scores provided by different raters? and (7) Why do raters not see the same aspects of performance within the given individuals?

Case Number One

(1) This teacher graduated from college in the 1949-50 school year. He had taught for approximately three years at the time his performance was evaluated. The following scores were recorded on his student profile:

Scholastic Ability:

ACE Intelligence Test - 44th decile
Reading Comprehension - 60th decile

Scholastic Achievement:

Honor-Pt. Ratio First Year - 1.9
Honor-Pt. Ratio Second Year - 1.9
Honor-Pt. Ratio Third Year - 2.0
Five Decies - 2.0
Basic English - 2.0

Professional Characteristics:

Achievement
Education 202 - D
Psychology 201 - B
Education 207 - B
Education 305 - D

Interests:

Vo-Ag Teachers (Strong) - No record
Teaching Satisfaction - No record
Interests of a Farmer (Strong) - No record

Qualifications in Farming:

Amount of farm experience - 2.0
Coverage of farm experience - C mark
F.F.A. (Rank) - State Farmer
Years of high-school agriculture - 3.5
Years of 4-H Club membership - 1.5
Ave. mark in "100-200" Agricultural courses - 1.5

Student-Teaching Marks: "CC"

(2) The performance scores given this individual by the raters are presented in Table XLIII.

(3) Only one Spearman Rank Correlation Coefficient was computed between raters since only two ratings were secured for this individual. This correlation of scores based upon ratings by a teacher educator and a state supervisor was .177 with a "t" value of .566 which is not significant at the five-percent level of significance. This means that the subsectional scores assigned by teacher educators did not correlate significantly with scores assigned this individual by state supervisors.

(4) The state supervisors and teacher educators had visited the teacher on his job and had observed him doing instructional work. Previous to this the supervising teacher in the department in which the individual did student teaching had made several comments concerning this individual. The supervising teacher commented: "....makes pleasing appearance - - - will make average or better teacher, provided he can get some help, some encouragement, in being a bit more energetic and thorough in his work. People will like him,

TABLE XLIII

PERFORMANCE SCORES OF CASE NUMBER ONE

Subsectional Area of Performance	Raters		
	School Administrator*	Teacher Educator	State Supervisor
A		74.7	72.5
B		-5.7	100
C		-100	100
D		7.1	66.4
E		17.4	100
F		-47.7	75.9
G		-34.6	100
H		-100	56.3
I		-12.3	100
J		-20.3	100
K		81.7	100
Ave.		-7.4	91.7

*No rating secured from this teacher's administrator as the rating scale was not returned.

but his work may be shallow." A course instructor said: ".....Volunteered for committee work; little participation in class discussion; few questions or comments; average prospect for teaching." A state

supervisor in one of his reports of a visit commented that: "....much work is still needed to bring the supervised farming program to a satisfactory scope - - he would have to spend considerable time coordinating the program of the school with the parents and students if a strong vocational program is to be operated. He is making fine progress in the organization and operation of his F.F.A. program - boys are taking an active part in development and operation of local program."

(5) To summarize this case, it can be said that the individual appears to have approximately average scholastic ability of college freshman. However, his scholastic achievement the first two years in college are slightly below average. His achievement in professional course work indicates that he did average work in two courses and below average in two others. One of the courses in which he did below average work was Education 305 which is the introductory course in agricultural education. His qualifications in farming are below average for beginning teachers of agriculture. There is some indication that the "CC" marks in student teaching are in keeping with his professional background.

It seems likely that the teacher educator rating this teacher knew of this individual's background, marks in professional courses, and qualifications in farming. The fact that the individual had a below average record may be reflected in the low performance scores assigned by the teacher educator.

The state supervisor rated this man 56.3 on Section H, which is "Providing On-Farm Instruction", and 100 on Section I, which is "Supervising and Developing Farming Programs." From the comments of the supervisor after one of his visits, it would be expected that a lower score would have been assigned for this latter area by the supervisor.

Comments by the supervising teacher and a course instructor indicate that the individual was an average student with perhaps not too much initiative. The individual had commented in his autobiography that he came from a broken home. His parents were divorced when he was five years of age.

The lack of agreement concerning this teacher's performance seems to be related to the fact that the teacher educator was perhaps more familiar with the individual, knew of his limitations and previous shortcomings, and this knowledge perhaps accounts for the low scores assigned; whereas, the casual observations of the state supervisor had perhaps failed to detect these inadequacies at the time of rating.

Case Number Two

(1) This teacher graduated from college in the 1949-50 school year. He had been teaching approximately three years at the

time his performance was evaluated. The following scores were recorded on his student profile:

Scholastic Ability:

ACE Intelligence Test - 1st decile
Reading Comprehension - 1st decile

Scholastic Achievement:

Honor-Pt. Ratio First Year - 2.0
Honor-Pt. Ratio Second Year - 2.5
Honor-Pt. Ratio Third Year - 2.5
Five Basics - 2.3
Basic English - 2.7

Professional Characteristics:

Achievements
Education 202 - C
Psychology 201 - C
Education 207 - B
Education 305 - B

Interests:

Vo-Ag Teachers (Strong's) - No record
Teaching Satisfaction - No record
Interests of a farmer (Strong) - No record

Qualifications in Farming:

Amount of farm experience - 2.5 years
Coverage of farm experience - C mark
F.F.A. (Rank) - Chapter Farmer
Years of High-School Agriculture - 4
Years of 4-H Club Membership - None
Average mark in "100-200" Agricultural Courses - 3.0

Student-Teaching Marks: "BB"

(2) The performance scores given this individual by the raters are presented in Table XLIV.

(3) Three Spearman's Rank Correlation Coefficients were computed between raters. The correlation of scores between teacher educators and administrator was -.248 with a "t" of .808 which was not significant at the five-percent level. The correlation between teacher educator and state supervisor was .323 with a "t" of 1.020 which

TABLE XLIV

PERFORMANCE SCORES OF CASE NUMBER TWO

Subsectional Area of Performance	Raters		
	School Administrator	Teacher Educator	State Supervisor
A	74.7	100	100
B	76.8	-1.5	68.6
C	69.1	75.1	85.5
D	67.2	100	100
E	100	82.8	9.1
F	71.8	100	34.9
G	100	-42.8	*
H	100	56.3	27.7
I	100	80.4	100
J	81.9	12	100
K	100	100	100
Ave.	87.1	69.0	75.6

*No basis for a decision.

was not significant. The correlation between school administrator and state supervisor was -.127 with a "t" of .383 which also was insignificant at the five-percent level.

(4) Several comments were made regarding this individual and his program in operation. The supervising teacher said: "He talks

too fast." The teacher educator, after a visit to the department in which the individual was employed, commented: ".....maintains a fine rapport with students observed; class was conducted informally and a good response was elicited; thorough job of pupil-teacher planning was done, but without much reference to needs on the home farms and farming programs represented; farm mechanics class not well planned - poor use of space and poor housekeeping. His superintendent is more aware of the contribution which the department can make to community than is the agricultural teacher." The state supervisor who observed the individual said: ".....he seems to be doing a rather satisfactory job as far as classroom and on-the-farm visits are concerned. There are students in vocational agriculture classes with not much opportunity to develop broad programs of supervised farming; ....found very limited application of farm-mechanics instruction directly to projects of a farm nature. .....Teacher said few boys lived on farm - farm mechanics was not up to standard the day of my visit."

(5) To summarize this case, it appears that this individual is below average in scholastic ability, yet he achieved slightly above average in his scholastic record and professional course work. He had a fair background in farming with four years of agricultural instruction at the secondary level, and he maintained a "B" average in technical agriculture in college. His lowest area of performance as scored by a teacher educator was for Section G which is "Conducting

Programs with Young Farmers and/or Adult Farmers." There is some indication that scores by teacher educators and administrators on Section J were influenced by the type of farm-mechanics program the teacher was conducting. On the other hand, the state supervisor recognized definite limitations in this part of the teacher's program, yet scored him perfect in performance. There is no reason to believe that the state supervisor was scoring this individual on general impression rather than on specific terms of performance called for on the rating form used.

Several areas of this teacher's performance seem to be quite satisfactory. In their reports of visits, the teacher educator and state supervisor recognized about the same limitations in the farm-mechanics phase of his program. The relationship found between teacher and pupils appears good. The reason for disagreement between raters concerning this teacher's performance is questionable. It may be the result of some raters rating on the basis of specific items of performance in contrast to others rating on the basis of general impression even though specifics are called for in the rating form.

Case Number Three

(1) The teacher graduated from college in the 1949-50 school year. He had been teaching approximately three years at the time his performance was evaluated. The following scores were recorded on his

student profile:

Scholastic Ability:

ACE Intelligence - No record
Reading Comprehension - No record

Scholastic Achievement:

Honor-Pt. Ratio First Year - 1.8
Honor-Pt. Ratio Second Year - 2.2
Honor-Pt. Ratio Third Year - 2.3
Five Basics - 2.0
Basic English - 2.0

Professional Characteristics:

Achievement
Education 202 - B
Psychology 201 - C
Education 207 - B
Education 305 - A

Interests:

Vo-Ag Teachers (Strong's) - No record
Teaching Satisfaction - No record
Interests of a Farmer - No record

Qualifications in Farming:

Amount of farm experience - 2.2 years
Coverage of farm experience - D mark
F.F.A. (Rank) - Not a member
Years of high-school agriculture - None
Years of 4-H Club membership - None
Average mark in "100-200" Agricultural Courses - 2.3

Student-Teaching Marks: "CC"

(2) The performance scores given this individual by the raters are presented in Table XLV.

(3) Three Spearman's Rank Correlation Coefficients were computed between raters evaluating the performance of this individual. The correlation of scores between teacher educator and administrator was .387 with a "t" of 1.257 which was not significant at the five-percent

TABLE XLV

PERFORMANCE SCORES OF CASE NUMBER THREE

Subsectional Area of Performance	Raters		
	School Administrator	Teacher Educator	State Supervisor
A	39.0	-60.7	100
B	100	-60.7	100
C	-58.2	-100	62.5
D	-3.3	29.2	100
E	-57.3	-66.2	27.9
F	0.0	-14.1	1.8
G	-37.7	-100	80.1
H	*	-100	100
I	54.2	-15.3	100
J	60.8	-53.3	-75.1
K	74.3	-28.1	100
Ave.	13.5	-49.5	60.4

*No basis for a decision.

level. The correlation between teacher educator and state supervisor was .203 with a "t" of .653 which was not significant. The correlation between school administrator and state supervisor was .373 with a "t" of 1.204 which was insignificant at the five-percent level.

(4) Several comments were made regarding this individual. An instructor of Education 302 and 406 said: "....does just enough to get by in quantity and quality." His instructor in Education 305 indicated he did - "Excellent work." The teacher stated in his autobiography - "Shall teach several years, buy a farm and settle down." The supervising teacher noticed that he was a poor speller and said: "Poor spelling at times has almost developed into a discipline problem. He does not visualize where he is going." The teacher educator in reports of visits in the teacher's department stated that: "The superintendent is quite pleased with Mr. X. His only criticism was that 'he talks too much'. Classes seemed to be operating satisfactorily. He tended at times to confuse his pupils. He is failing to use local farming situations in his classroom work. The farm shop has serious shortage of tools for farm shop projects." A state supervisor commented briefly: "...seems well liked by students. ...conducts an interesting and lively discussion."

(5) To summarize this case, it appears that the teacher had average scholastic achievement in college. His achievement the first year was slightly below average. However, his achievement in professional course work was above average. He does not possess a strong background in farming. He did not belong to or participate in any rural youth groups listed. In comparison to the majority of student teachers, he was below average in student teaching. The teacher educator's rating of this teacher seems to correlate with

what he reported after visiting the individual. Example of this is the ratings given in Section E - "Utilizing Acceptable Methods of Teaching", Section F - "Conducting Programs with Young and/or Adult Farmers" in relationship to the statements that the teacher confused his pupils and failed to use local farming situations in applying classroom work. His administrator rated him down in several sections. One of these was in Section D - "Maintaining Administrative Relationships." This appears interesting since the administrator had commented that the teacher"talks too much." Little evidence of why the supervisor rated him as he did is given. The reason for lack of agreement between raters on this teacher's performance is still in doubt. It may be due to more observation of the teacher by two of the raters than by the other rater.

Case Number Four

(1) This teacher graduated from college in the 1951-52 school year. He had been teaching approximately one year at the time his performance was evaluated. The following scores were recorded on his student profile:

Scholastic Ability:	Scholastic Achievement:
ACE Intelligence Test - 2nd decile	Honor-Pt. Ratio First Year - 2.1
Reading Comprehension - 4th decile	Honor-Pt. Ratio Second Year- 2.1
	Honor-Pt. Ratio Third Year - 2.2
	Five Basics - 2.2
	Basic English - 2.0

Professional Characteristics:

Achievement
Education 202 - C
Psychology 201 - D
Education 207 - B
Education 305 - D

Interests:

Vo-Ag Teacher's (Strong's) - 3rd decile
Teaching Satisfaction - 7th decile
Interests of a Farmer (Strong's)- 3rd decile

Qualifications in Farming:

Amount of farm experience - 2 years
Coverage of farm experience - C mark
F.F.A. (Rank) - Not a member
Years of high-school agriculture - None
Years of 4-H Club membership - None
Average mark in "100-200" Agricultural Courses - 3.0

Student-Teaching Marks: "BC"

(2) The performance scores given this individual by the raters are presented in Table XLVI.

(3) Three Spearman's Rank Correlation Coefficients were computed between raters evaluating the performance of this individual. The correlation of scores between teacher educator and administrator was .167 with a "t" of .534 which was not significant at the five-percent level. The correlation between teacher educator and state supervisor was .326 with a "t" of 1.075 which was not significant. The correlation between the school administrator and state supervisor was .331 with a "t" of 1.092 which was also insignificant at the five-percent level.

(4) Several comments were made regarding the individual and his program by teacher educators, state supervisors, and others.

TABLE XLVI

PERFORMANCE SCORES OF CASE NUMBER FOUR

Subsectional Area of Performance	Raters		
	School Administrator	Teacher Educator	State Supervisor
A	47.9	10	100
B	100	48	77.5
C	61	76.4	100
D	100	100	100
E	100	18	100
F	71.1	-16	100
G	61.7	100	100
H	100	-1.2	100
I	100	100	100
J	100	100	100
K	100	100	100
Ave.	83.6	69.7	98.4

The teacher revealed in his autobiography that he was an only child and that he had an operation for goiter in 1951. A teacher educator reported on visiting him and said: "He had given considerable attention to setting up a new farm shop; students seem to like him; class participation good; knew what he was trying to accomplish; kept

class moving nicely although once or twice he seemed at a loss as how to proceed when a question was raised which did not seem particularly related to the lesson; expressed particular satisfaction with adult work; students seem to like his friendly, unassuming manner; spelling is a problem for him; made visits to all his students before school started. A state supervisor commented that: ".....students are getting some good experience in getting shop ready for use. ....is a promising, young teacher - but could be more forceful in his teaching; made few farm visits in October; needs a course outline for his day-school program."

(5) To summarize this case, it appears that the teacher has slightly below average scholastic ability. His scholastic achievement was average, but his marks in professional course work is below average. His interests and teaching satisfaction ratings are comparable to the criterion group of successful teachers and farmers. He has minimum farm experiences for a teacher of agriculture. He was not a member of any recorded rural youth organization or instructional program. Scores between raters correlated positively, but not at an acceptable level of significance. The teacher educator scored the individual low in Section F - "Conducting Programs with All-Day Students." This may have resulted from his observation of the teacher's difficulty in handling unrelated questions raised during class discussions. The raters agreed that his performance in several areas was very good. The state super-

visor seemed to consistently rate the teacher higher than did any other rater. The state supervisor's comments indicate some additional farm visits might be desirable, yet scored the individual "100" for Section H - "Providing On-Farm Instruction." The reason for lack of agreement of this teacher's performance between raters is not indicated too strongly in the data accumulated.

Case Number Five

(1) This teacher graduated from college in the 1950-51 school year. He had been teaching approximately two years at the time his performance was evaluated. The following scores were recorded on his student profile:

Scholastic Ability:

ACE Intelligence Test - 6th decile
Reading Comprehension - 3rd decile

Scholastic Achievement:

Honor-Pt. Ratio First Year - 2.0
Honor-Pt. Ratio Second Year - 2.1
Honor-Pt. Ratio Third Year - 2.3
Five Basics - 2.0
Basic English - transferred

Professional Characteristics:

Achievement
Education 202 - C
Psychology 201 - D
Education 207 - B
Education 305 - C

Interests:

Vo-Ag Teacher's (Strong's) - 5th decile
Teaching Satisfaction - 4th decile
Interests of a Farmer (Strong's) - 5th decile

Qualifications in Farming:

Amount of farm experience - 2 years
Coverage of farm experience - C mark
F.F.A. (Rank) - Not a member

Years of high-school agriculture - 0.5
Years of 4-H Club membership - None
Average mark in "100-200" agricultural courses - 2.9

Student-Teaching Marks: "CC"

(2) The performance scores given this individual by the raters are presented in Table XLVII.

TABLE XLVII

PERFORMANCE SCORES OF CASE NUMBER FIVE

Subsectional Area of Performance	Raters		
	School Administrator	Teacher Educator	State Supervisor
A	-42.8	20.8	100*
B	100	-100	27.9
C	45.3	-32.1	50.7
D	100	52	100
E	100	-52.5	33.7
F	100	-33.3	100
G	**	**	**
H	100	-38.7	45.9
I	76.5	18.1	63.2
J	**	63.9	**
K	100	100	100
Ave.	68.4	9	63.1 /

*No basis for a decision.
**No program in operation in this area.
/Scored on less than 201.7 points (50 percent of points on rating scale).

(3) Only one Spearman's Rank Correlation Coefficient was computed between raters evaluating the performance of this individual. The correlation of scores between teacher educator and administrator was -.150 with a "t" of .420 which was not significant at the five-percent level. Since the supervisor did not rate the teacher on a sufficient number of items to produce a valid rating, only one correlation coefficient was computed.

(4) Several comments were made regarding the individual and his program in reports of visits by a teacher educator and state supervisor. The teacher educator reported: "He said he would not teach adult classes at X; classwork badly organized; too easy on pupils; poor professional attitude; places himself on same level as pupils; states he would resign if he had to teach an adult class; handicapped because of study hall assignments." The state supervisor reported: "Although the teacher of vocational agriculture has had full time to devote to vocational agriculture, the adult- and out-of-school young-farmer groups have not been developed. The first year Mr. X was at X, 96 percent of his students received experience in a supervised farming program and 83 percent had ownership growing toward establishment in farming. Last year only 79 percent received experience at the 'doing' level and 55 percent were carrying ownership projects." The supervisor, in a letter to the teacher's superintendent, stated: ".....insufficient time is allowed your teacher to do an adequate job of on-farm instruction."

(5) To summarize this case, it appears that this individual is approximately average in scholastic ability and achievement. His achievement in professional courses is slightly below average of the majority of teachers trained. His teaching satisfaction score is average for teachers of vocational agriculture. He had very little experience in rural youth organizations and instructional programs. He had minimum qualifications of farm experience for a teacher of vocational agriculture.

The scores assigned this teacher by a teacher educator are in keeping with the things observed regarding the teacher and his program during a visit. The teacher educator's most severe criticism seemed to be in regard to the teacher's poor professional attitude. It was in this area B - "Maintains Professional Standards and Relationships" - that the teacher educator rated this individual -100.

The state supervisor was rather severe in his criticism of the program in operation, yet he did not rate a sufficient number of items to really be considered. The implication given by the supervisor was that the supervised farming programs was deteriorating in quality since the employment of this teacher. From the comments and ratings of the raters, it is understandable why this teacher was rated low in performance. A possible reason why raters did not agree on this teacher's performance may be due to the amount of observation of the teacher and his attitude. Even though the teacher

educator and state supervisor had observed the poor professional attitude of the teacher and his lack of desire to operate out-of-school groups, they did not agree on the relative performance of this teacher in the two areas involved.

General Summary of the Five Cases

It is felt that some possible reasons were discovered as to why raters did not agree on some teachers' performances. In general, it was noted that the five cases studied were only average students on a majority of characteristics on their student profiles. The very fact that they are just average persons and were not either extremely high or low in measurable characteristics may have created confusion and difficulty in rating their respective performances.

There was indication that the lack of agreement of some teachers' performance may be related to the fact that the teacher educators were more familiar with the beginning teachers than were either administrators or state supervisors. In this case, it is apparent that the teacher educators were more likely to know of the individual's strengths and limitations, thus accounting for the scores assigned. On the other hand, the casual observations of the state supervisors and administrators may have failed to detect any strengths or inadequacies at the time of rating. The amount and

nature of observation both seem to be important in securing agreement as to a teacher's performance.

Another possible reason for lack of agreement on performance scores assigned by raters is that raters may recognize certain limitations of a teacher or his program, yet disregard these factors in their evaluations. There is reason to believe that, in this case, raters sometimes scored individuals on general impression rather than on specific items of performance called for on the rating form used. Another aspect of this results when one rater scores on specific items of performance in contrast to others rating a teacher on general impression.

There is also reason to believe that some raters consistently rate individuals higher than do other raters. In several cases, it was found that some raters commented in their reports of visits that certain limitations were evident either in a teacher or his program, yet they rated teachers high in these areas of performance. The state supervisors did not consult reports on file during the process of rating teachers. Some of the teacher educators did refer to reports of visits during the process of rating teachers. Whether some raters are more discriminatory in their ratings or not is not known. There are, however, evidences that they may be.

It is believed that much evidence of a teacher's performance was discovered in studying reports of visits by state supervisors and teacher educators. When considered in this light, certain general

impressions of performance in relationship to pre-teaching characteristics of the five cases can be made. It is fairly evident that teachers on whom raters could not agree did not score relatively high on performance. Similarly, their pre-teaching characteristics considered jointly were only average to below average to below average. When considered in these general terms, there appears to be a positive relationship between low performance scores and low scores on measurable, pre-teaching characteristics of teachers of vocational agriculture. Since performance scores of these teachers did not correlate significantly between raters, their performance was not, however, studied for determining statistically whether this apparent positive association was significant or not at the five-percent level of acceptance.

Prediction of Teacher Performance on the Basis of Student-Profile Data for 62 Teachers of Vocational Agriculture

It was not a stated purpose of this study to attempt to predict teaching performance, but rather to analyze the relationships of pre-teaching characteristics to subsequent performance of teachers of vocational agriculture. It is, however, recognized that persons viewing a student's profile either consciously or unconsciously do a certain amount of predicting even in a guidance and counseling situation which is normally encountered. This being the case, it appears worthy to consider whether performance can be predicted on

the basis of the student-profile data which have been studied.

To implement this phase of the study, two individuals were selected to predict the performance of the 62 teachers being studied on the basis of their student profiles. One of these individuals was a trained vocational educationist with seven years of professional experience who did not know the 62 individuals. He was, however, familiar with the student profiles and their current uses. The other individual was a trained, experienced educational psychologist who was not acquainted with the individuals being studied. The reasons for selecting these particular individuals were: (1) a prediction by a person trained as a teacher of vocational agriculture and currently engaged in teacher-educating work was desired, (2) a prediction was desired from a person who had considerable knowledge of the factors on the student profile yet had not had experience in using these particular ones, and (3) the individuals selected were not acquainted with any of the 62 teachers, thereby eliminating possible bias due to previous knowledge of a teacher.

Each of the two predictors were given the 62 student profiles containing all available information on the pre-teaching characteristics. Each predictor was directed to study each student's profile as a composite of the student's pre-teaching characteristics and from the data supplied to predict the performance level of each teacher. No specific number of teachers were to be predicted as top, average or

poor teachers. It was left to the predictor to determine how many teachers would be predicted in each level of performance. Since the use of the student profile had been based solely upon intuitive knowledge of any possible relationships of characteristics to performance, no system was supplied to the predictors for a basis of making their predictions. This created an intuitive prediction of the 62 teachers much like any prediction which may have occurred previously without any valid foundation. This point should be understood clearly to see the intent and purpose of securing the predictions made. The essential question faced therefore is: Can teacher performance be predicted on the basis of the student-profile data currently being used?

The criterion of teacher performance used is that of the average performance scores derived from the ratings of teachers supplied by school administrators, teacher educators and state supervisors. The relationship of prediction of performance to actual rated performance level of the 62 teachers was tested by the method of Chi square to determine if the association was significant at the five-percent level.

The trained vocational educationist predicted teacher performance on three levels - "top", "average" and "poor" teachers. The relationship of performance level to the prediction of performance on the basis of student profile data by the vocational educationist is shown in Table XLVIII. The Chi square computed on the data given

was 3.47 with four degrees of freedom which was not significant at the five-percent level. On the basis of this test, it would be concluded that this predictor could not successfully predict

TABLE XLVIII

RELATIONSHIP OF PERFORMANCE LEVEL TO PREDICTION OF PERFORMANCE ON BASIS OF STUDENT-PROFILE DATA FOR 62 TEACHERS OF VOCATIONAL AGRICULTURE BY PREDICTOR "A"

Average Performance Level	Predicted "Poor" Teachers	Predicted "Average" Teachers	Predicted "Top" Teachers	Total
97.6 - up	7	14	4	25
92.6 - 97.5	9	13	2	24
Below 92.5	6	5	2	13
Total	22	32	8	62

teacher performance on the basis of student profile data alone.

It is interesting that 50 percent of the predicted "top" teachers scored above 97.6 on average performance; 40.6 percent of the predicted "average" teachers scored above 97.6; and 31.8 percent of the predicted "bottom" teachers scored above 97.6 on average performance. On the other hand, 25 percent of the "top" teachers scored below 92.5 as compared to 15.6 percent of the

"average" teachers and 27.2 percent of the predicted "bottom" teachers. These percentages indicate that the predictor could predict to a very slight extent, yet not at a significant level for statistical acceptance.

The trained, experienced educational psychologist predicted teacher performance on five levels, using letter marks as predicted performance levels. For example, "A" designates predicted superior performance, "C" designates predicted average performance, "D" designates predicted below average performance and "F" designates predicted failing performance. The relationship of performance level to the prediction of performance on the basis of student-profile data by the educational psychologist is presented in Table XLIX. The Chi square computed from these data was 2.13, with eight degrees of freedom. This Chi square was not significant at the five-percent level. Therefore, it would be concluded that this particular predictor could not successfully predict teacher performance on the basis of student-profile data alone. It was also found that 38.8 percent of the teachers predicted "B" or above scored above 97.6 on average performance as compared to 36.8 percent predicted "D" or below. Similarly, 38.8 percent of the teachers predicted "B" or above scored between 92.6 and 97.5 as compared to 36.8 percent predicted "D" or below. Also, 22.4 percent of the teachers predicted "B" or better scored below 92.5 on average performance as compared to 26.4 percent

predicted "D" or below. The latter predictor commented that collegiate extra-curricular activities and some measure of social adjustment should be included on the student profile to aid in making better predictions of teacher performance.

TABLE XLIX

RELATIONSHIP OF PERFORMANCE LEVEL TO PREDICTED PERFORMANCE ON BASIS OF STUDENT-PROFILE DATA FOR 62 TEACHERS OF VOCATIONAL AGRICULTURE BY PREDICTOR "B"

Average Performance Level	Number of Teachers at Each Level of Predicted Performance					
	F	D	C	B	A	Total
97.6 - up	2	5	11	4	3	25
92.6 - 97.5	3	4	10	4	3	24
Below 92.5	1	4	4	2	2	13
Total	6	13	25	10	8	62

On the basis of the evidence presented here, it is the contention that teacher performance cannot be successfully predicted on the basis of the present profile factors without knowing the relationships established in this study. There are reasons to believe that additional profile factors are needed before teacher performance can be predicted at a level of statistical acceptance. The findings

presented substantiate the belief that - until such profile factors are found to be valid for selection of students and prediction of teacher performance - the profile data should not be used for these purposes. Additional implicated factors should be accumulated. If this policy is adopted, additional research and continuous study must be made in this area to arrive at any satisfactory system of utilizing student-profile data.

CHAPTER V

SUMMARY

The summary of this study is divided into two sections. The first section is concerned with development of the rating instrument, procedures used, trial test findings, and review of literature. The second section will be devoted entirely to a summary of the most important findings.

Procedures, Rating Instrument and Related Findings

1. A rating scale was developed for evaluating performance of teachers of vocational agriculture. A jury of six teacher educators, five state supervisors, and four school administrators evaluated and weighted items which composed the scale. A set of standards was developed to serve as a basis for inclusion of each item on the scale. A total of 107 of 146 items on the original scale met the standards and were retained for the revised scale. This represented 73.2 percent of the original items retained.

2. A trial test was conducted, using the original performance rating scale. A system for scoring the scale was developed. Ratings of 10 teachers' performances were secured in the trial test from teacher educators, state supervisors and school administra-

tors. The test of Spearman's Rank Correlation Coefficient was used to determine if ratings between raters were significantly related. Average performance scores for the ten teachers did not correlate at the five-percent level of significance. A total of 26 Spearman's Correlations was computed between raters on subsectional scores of teachers' performance. It was found that 15, or 57.7 percent, of 26 correlations were significant at the five-percent level, based upon subsectional scores. Seven of 10 teachers' subsectional scores between two or more raters correlated at the five-percent level.

3. A total of 174 persons were trained as teachers of vocational agriculture in Michigan between 1948-49 and December, 1952. Of this number, 86, or 49.4 percent, were not teaching at the time of the study. Therefore, 88, or 50.6 percent of those trained were teaching.

4. Ratings for the 88 teachers were secured from teacher educators, state supervisors, and school administrators. One-hundred percent returns of ratings were secured from teacher educators and state supervisors, and 86, or 96.5 percent, of the 88 school administrators responded to the request for performance ratings.

5. In testing scores of the 88 teachers by analysis of variance, it was found that average performance scores fluctuated more among teacher educators, school administrators, and state

supervisors than scores assigned to teachers by teacher educators when considered alone. The same was true for scores by school administrators and state supervisors.

6. Sixty-two teachers' performance scores between two or more raters correlated at the five-percent level of significance. Therefore, 70.4 percent, or 62, of the 88 teachers were studied in analyzing pre-teaching characteristics and teaching performance. A total of 113 of 226 Spearman's Correlation Coefficients were significant at the five-percent level. The Spearman-Brown Prophecy Formula revealed estimates of reliabilities ranging from .562 to .671, based on average performance scores. From this standpoint, the instrument was as reliable as any other rating instrument on which reliability data were available. The subsectional scores for the 62 teachers were averaged and subsequently served as the criterion of performance.

7. A skewed distribution of performance scores for the 62 teachers resulted from the ratings secured.

8. An extensive review of literature revealed that much research has been conducted in areas of predicting teacher effectiveness and measuring teaching ability. Two possible criteria of teaching effectiveness were studied: (1) observation and evaluation of the teacher and (2) observation and evaluation of the product of the teacher - the pupil.

9. Important findings revealed in review of studies were: (1) low to insignificant correlations were found between teaching

interest and practice teaching and teaching success; (2) vocational interests correlated very low to teaching success; (3) successful teachers of agriculture more often belong to farm organizations during their youth than do non-successful teachers; (4) there is disagreement as to whether farm experience is closely associated with teaching vocational agriculture; (5) very few recommended training experiences of prospective teachers had close relationship to first year performance; and (6) practically all investigators agreed that prediction of teaching success on factors studied to date is yet unaccomplished.

Findings of Relationships

1. A total of 21 measurable characteristics on the student profile were analyzed for relationships to teaching performance. Student-teaching marks were also studied in relationship to teacher performance.

2. In analyzing the distribution of the pre-teaching data of the 62 teachers, it was discovered that teachers remaining in vocational agriculture had received statistically higher student-teaching marks than persons trained who dropped from the field. This was interpreted to mean that a superior group of teachers was studied. For a majority of the 21 pre-teaching characteristics on the student profile, the teachers studied were above average.

3. The Chi square computed between average performance scores of teachers and the 21 pre-teaching characteristics were not significant at the five-percent level.

4. Only 29 of the 62 teachers had been members of the FFA. Thirty-four and five-tenths percent of these scored above 97.6 as compared to 48.5 percent of the teachers who had not been members. These percentages, however, were not significantly different.

5. Of eight teachers with more than 4.1 years of farm experience, three scored above 97.6 on average performance, three scored between 92.6 and 97.5 and two scored below 77.5 on average performance. Of four teachers receiving a mark of "A" for coverage (scope and variety) of farm experience, one scored above 97.6 on average performance, two scored between 92.6 and 97.5 and one scored below 77.5.

6. No significant difference was found between teachers having and not having had high-school agriculture and scoring above 97.6 on average performance.

7. Of six teachers scoring below 77.5 on average performance, two received a rating of "Excellent" by the composite of instructors' ratings; three were rated "Acceptable" and one "Doubtful."

8. A comparison of the eight "top" and eight "bottom" teachers in performance revealed little differences between the groups on the traits studied. The only characteristics which were slightly in favor of the "top" performing group of teachers were:

(1) mark in Education 202; (2) mark in Psychology 201; (3) coverage of farm experience; (4) number of years of 4-H Club membership; and (5) student-teaching marks. Top and bottom groups, respectively, had "A" ratings for "Interests of a Teacher of Vocational Agriculture", "Teaching Satisfaction", and "Interests of a Farmer."

9. Only five of 56 teachers had a "B" rating for "Interest of a Teacher of Vocational Agriculture." Fifty-one had rated interests of "A", meaning that their interests are comparable to those of the criterion group of successful teachers. Since 50 of 51 teachers had "A" ratings for "Teaching Satisfaction" and only one had a "B" rating, this group should be well satisfied with their work and jobs.

10. A negative relationship, significant at the five-percent level, was found between ACE Psychological test scores and performance of teachers in "Working with People in Community." Four teachers with ACE scores above the eighth decile scored below 87.5 on performance, whereas teachers having ACE scores below the third decile did not score as low as 82.5. No significant relationships were established between "Reading Comprehension" scores and selected areas of performance of teachers of vocational agriculture.

11. Only five scores for mechanical index were found for the 62 teachers. Since data were insufficient for adequate study, no relationship could be established with performance and this factor.

12. The Chi squares computed between scholastic achievement as measured by honor-point ratio and performance in five selected areas were not significant at the five-percent level. However, "Planning and Conducting General Activities" had the highest positive relationship to honor-point ratio. There was some indication that persons with high honor-point ratios more often conducted programs with out-of-school groups than did persons with low honor-point ratios. The Chi square computed between performance of teachers in "Working with People in Community" and the "Five Basics" was significant at the ten-percent level. A significant negative Chi square, at the five-percent level, was found between performance of teachers in "Maintaining Professional Standards and Relationships" and the "Five Basics." No significant relationship was found between "Basic English" and selected areas of performance.

13. No significant relationships were found between Education 305, Education 207, and Education 202 and selected areas of performance. However, a significant positive relationship was found between achievement in Psychology 201 and performance in "Working with People in Community."

14. Teachers with "A" rated "Interests of a Teacher of Vocational Agriculture" scored statistically above the arithmetic mean for average teacher performance. Teachers with "A" ratings generally score high in performance, but infrequently a small number score low.

15. Significantly positive associations, at the five-percent level, were found between "Interests of a Farmer (Strong)" and performance of teachers in "Working with People in Community" and "Conducting Programs with All-Day Students." A positive association, at the 10 percent level, was found between "Interests of a Farmer" and "Conducting Programs with Young and/or Adult Farmers." Ninety percent of the teachers with "A" rated interests scored above 97.6 in "Providing On-Farm Instruction."

16. A positive relationship was found between the amount of farm experience and "Conducting Programs with Young and Adult Farmers." The significant relationship, at the five-percent level, found between amount of farm experience and "Providing On-Farm Instruction" was negative. All of the 16 teachers with only two years of farm experience scored above 97.6 on "Providing On-Farm Instruction" compared to 18 of 23 with more than 3.1 years scoring above this level; four scored below 72.5.

17. No significant relationships were discovered between rank achieved in the FFA and selected areas of performance. A negative relationship, at the five-percent level, was found between years of high-school agriculture and "Providing On-Farm Instruction." Eighty-one and five-tenths percent of the teachers having high-school agriculture, and 83.3 percent not having high-school agriculture scored above 97.6 on "Supervising and Developing Farming Programs." Only 30 of the 62 teachers were former members

of the 4-H Club. A positive Chi square, at the ten-percent level, was found between "Average marks in 100-200 agricultural courses" and performance in "Teaching Farm Mechanics." It was found that 88.8 percent of teachers having a "B" or better average on 100-200 agricultural courses scored above 97.6 on "Conducting Programs with All-Day Students" compared to 82.5 percent of the teachers having less than a "B" average.

18. Two of ten Chi squares computed between instructors' ratings and selected areas of performance were significant at the five-percent level. The relationship between instructors' ratings and "Utilizing Acceptable Methods of Teaching" was found to be positive, but the relationship found with performance in "Maintaining Administrative Relationships" was negative. Fourteen and five-tenths percent of the teachers rated "Acceptable" or better scored below 87.5 on "Utilizing Acceptable Methods of Teaching" compared to 42.8 percent of the teachers rated "Doubtful."

19. No significant associations were found between student-teaching marks and selected areas of performance. Of 13 teachers reported having no farm-mechanics programs, one received "AA" in Student Teaching, two received "AB", six received "BB", two received "BC" and two received "CC". No significant relationships were found between student-teaching marks and pre-teaching characteristics. The two highest positive relationships were found with Education 305 marks and instructors' ratings.

20. A case-study analysis of five teachers on whom raters could not agree on their performance was made. Teacher educators, state supervisors and others in their reports concerning the five teachers and their programs revealed possible reasons why raters did not agree on each teachers' performance. Reasons which seemed apparent included: (1) cases studied were "average" - not extremely high or low in measurable characteristics - this may have created difficulty in rating performance; (2) teacher educators were more familiar with the beginning teachers than were either administrators or state supervisors; (3) raters sometimes scored individuals on general impression rather than on specific items of performance called for on the rating form; and (4) some raters consistently rated individuals higher than did other raters.

Teachers on whom raters could not agree did not score relatively high on performance; their pre-teaching characteristics considered jointly were only average to below average. Considered in these terms, there seems to be a positive relationship between low performance scores and low scores on measurable, pre-teaching characteristics of teachers of vocational agriculture.

21. Two educators attempted to predict teaching performance of the 62 teachers on the basis of their student-profile data alone. They did not successfully predict performance as measured at the five-percent level of significance. However, it was found that

50 percent of the predicted "top" teachers scored above 97.6 on average performance; 40.6 percent of the predicted "average" teachers scored above 97.6; and 31.8 percent of the predicted "bottom" teachers on performance scored above 97.6 on average performance. The differences of these percentages are not significant at the five-percent level. The raters indicated a need for additional profile data in predicting performance.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Three purposes of this study are related to the conclusions and two to the recommendations. In this section, conclusions regarding the findings associated with the following three purposes are presented: (1) to devise a performance rating scale for measuring performance of teachers of vocational agriculture; (2) to discover pre-teaching characteristics related to measured-teacher success; and (3) to discover if present pre-teaching data were sufficient for guidance and limited selection of prospective teachers. Each of these purposes will be considered in the order they are listed, with subsidiary conclusions listed along with each major conclusion.

1. The performance rating scale developed proved to be a fairly reliable and valid instrument for measuring performance of teachers of vocational agriculture. The instrument is primarily a measure of performance and does not purport to measure personality and social behavior of teachers. The validity of the scale is based upon the judgment of the jurors who evaluated and weighted each of the items on the scale.

a. The rating scale is comprehensive in that the many work areas of a teacher of vocational agriculture were represented and evaluated by leading educators in state supervision, school administration and teacher education. The relative weights assigned to individual items are suggestive of the relative importance of certain aspects of performance of teachers as compared to others. These relative values might conceivably serve as a theoretical guide for time distribution and expenditures of energies of teachers of vocational agriculture, recognizing, of course, that the items on the scale are not all inclusive of different work phases of the teacher of vocational agriculture.

b. The rating scale has limitations which may be partially eliminated by its revision. The instrument did not adequately discriminate among teachers scoring relatively high in performance. Evidence of this is the skewed distribution of performance scores for the teachers studied. Causes of skewedness of scores do not necessarily lie in the instrument, but may be the resultant of studying a superior group of teachers. If this is true, the skewedness is understandable.

c. A superior group of teachers was studied with respect to certain factors. Selectivity occurs at several

points in the training program and after graduation from college. Certain individuals drop from college due to below minimum academic averages. Other individuals fail to qualify as teachers of vocational agriculture because of inadequate farming background or failure in student teaching. After graduation, some individuals who do not have interests in teaching enter other employment; others leave teaching after a short period of employment. For various reasons the persons remaining in teaching vocational agriculture are primarily a selected and superior group for their chosen vocation. This selectivity naturally influences the performance scores computed from a scale devised to measure a "representative" group of teachers of vocational agriculture.

d. Average performance scores of teachers do not adequately reveal performance in the specific work areas of teachers. This necessitates consideration of performance scores for "subsectional" areas of performance. A study of scores on subsectional area of performance of teachers should reveal possible areas in which additional training is needed and areas in which teacher educators could strive to improve during the training program.

e. If raters are given the opportunity to help devise rating instruments, it is believed that they can more nearly agree on the performance of teachers. Ratings, however, should be made as objective as possible. Raters should be informed that when they are aware of certain limitations and strengths of teachers they should rate teachers on specific items of performance rather than on general impression. Rating performance on general impression of a teacher would defeat the purposes of trying to evaluate specific items or areas of performance of teachers of vocational agriculture.

f. It is difficult to evaluate effectively the performance of teachers. The activities of teachers are so diverse that raters are, in cases, unable to adequately observe and evaluate specific items of performance. In evaluating performance and ability, consideration should be given to personality and social adaptability.

2. No significant relationships were established between average performance scores and pre-teaching characteristics of teachers. However, there were several significant associations established between pre-teaching characteristics and selected areas of performance.

a. Evaluation of performance in specific areas appears to be more valid than trying to evaluate average performance of teachers of vocational agriculture. Teachers are more proficient in some work areas than others. With the trend of multiple-teacher departments, it appears logical that special abilities and interests of each individual might be considered in determining division of duties and responsibilities of teachers. Evaluation of teachers' performance, in such cases, perhaps should consider specific areas of performance rather than the traditionally complete type performance program desired of a teacher in a one-man department. If such policies were advanced in the field of vocational agriculture, it would tend to maximize the strengths of teachers and perhaps create better personal adjustment on the job.

b. The positive associations found between several subsectional areas of performance and pre-teaching characteristics indicate the possibility that specific abilities and interests of teachers influence the degree of success in specific work areas. Teachers having high interests of farmers would be expected to be more successful in performance in working with all-day students, young farmers and adult farmers than teachers with low measured interests.

c. There are some pre-teaching factors which appear to bear no significant relationship to performance of teachers. These factors might be considered incidental in nature as compared to other factors which influence performance of teachers either in a positive or negative nature. Scholastic ability and achievement as measured bear little relationship to the selected areas of performance studied. It appears that persons with just average scholastic ability possess other characteristics which can over-compensate for this one trait. Success in teaching is not dependent on any one trait, but is determined by a multitude of characteristics and their interactions with the particular teaching environment.

d. Negative associations found between some pre-teaching characteristics and selected areas of performance indicate the necessity of clarifying such characteristics in the success of teachers. For example, has it been established that a minimum of two years of farm experience beyond the age of 15 is a prerequisite to success and effectiveness in teaching vocational agriculture? It appears that some of the assumptions regarding minimum qualifications of teachers might be questioned.

e. Student-teaching marks of teachers were not significantly related to general performance, neither were they related to the 21 pre-teaching characteristics. Since pre-teaching characteristics and student teacher were not significantly related, it is not surprising that measured performance was not highly related to these pre-teaching characteristics.

f. Case-study analyses have value in studying the relationship of pre-teaching characteristics and performance. Reasons can be revealed, by such a technique, why raters do not agree on some teachers' performance. Evidence presented in the case studies of five teachers, considered jointly, revealed a seemingly positive relationship between pre-teaching characteristics and performance.

g. The case-study analyses made of five teachers are longitudinal in nature and should be considered in terms of the objectives of such procedure. A case-study analysis allows study of the "total" individual as well as study of individual traits. The human element involved in case analysis shows the individual as others have viewed him without knowing that recorded observations would be utilized in evaluating performance.

3. Pre-teaching data studied appear to be insufficient for selection and prediction of success of prospective teachers. However, present pre-teaching data appear useful for limited guidance and counseling of trainees in agricultural education.

a. Pre-teaching data might be used to counsel students regarding minimum qualifications as stated in the state plan for vocational education. The fact that approximately 50 percent of persons trained are not currently teaching indicates that perhaps many of the "poor" performers have been guided from the field. Profile data can enable an individual to view himself objectively and could tend to serve as a stimulus for self improvement.

b. Other factors are needed for successfully predicting teacher performance. Teacher performance was not successfully predicted on the basis of present profile factors studied.

c. If the philosophy is held that teaching ability plus several variables actually determine performance, these variables might include: (1) the environmental situation in which the teacher is working, regarding administrative relations, faculty relations, type of farming community, disposition of people in community; (2) work load of teacher or division of work load in multiple-teacher departments; (3) personality patterns

of the teacher as to whether he is an introvert, extrovert, gregarious, et cetera; (4) mental health of teacher as denoted by his self-concept being compatible with reality such that ability and performance can most nearly become synonymous; (5) opportunity for professional improvement; and (6) confidence of the teacher in himself and in the job he is doing.

Recommendations

The recommendations presented are based upon the findings, the philosophy of the investigator, and research cited. They must be viewed in terms of the limitations of the rating instrument and of the sample, the distribution of performance scores and pre-teaching characteristics, the design of the study, and the techniques used in analyses of data. The sample studied is affected by the factor of time. Teachers were studied during a given period of time on a cross-sectional basis. If teachers had been studied longitudinally the statistical significance of the findings might conceivably have been different. It is felt that certain applications can be made, however, from the findings and conclusions.

Two of the purposes of this study apply directly to recommendations. They are: (1) to develop suggestions for improvement of pre-teaching data related to guidance services of counseling

and selection of prospective teachers; and (2) to develop suggestions for methods of continuous study in this area. What, then, are the specific recommendations resulting from this study?

1. In regard to the student profile currently used, several recommendations are made.

   a. The individual's classification should be recorded on the student profile at the time ACE Psychological Test, Reading Comprehension, and Interest Inventories are administered. This is necessary for determining if level in college affects scores on these examinations.

   b. Some measures of personality and social adaptability should be included on the student profile. This may require the development of satisfactory scales adapted primarily for teachers of vocational agriculture or improvement of personality and social scales currently in use. This area of personality and adjustment is too important in the success of teachers to be omitted if profiles are to be effectively used for counseling of prospective teachers.

   c. More comments should be made about each trainee's personal habits and beliefs than is the case at present. Very few comments were supplied on the 62 teachers' profiles. This may suggest that anecdotal records be accumulated and summarized periodically for each

individual. Recognizing certain weaknesses in such records, they would, however, supply some additional information which may prove to be very important in teaching success. The use of such records must necessarily be closely guarded and clearly understood by their users.

d. More nearly complete data should be gathered on the mechanical index of trainees. Since it was found that ACE scores and Reading Comprehension were not significantly related to the performance of the teachers studied, it may well be that mechanical index more adequately measures what is desired in teachers of vocational agriculture.

e. A section should be developed on the student profile or on supplementary forms for the recording of collegiate extra-curricular activities participated in by each teaching candidate. Also, any work experiences with young people and/or adults should be recorded, stating the type and amount of such experiences. It may be well to record when the candidate decided to enter teaching and what or who influenced him to do so.

f. Certain profile factors should not be over-emphasized on the basis of the findings of this study. These factors are the ones which were negatively associated

with performance or were not significantly related to performance. Care should be taken for all pre-teaching characteristics to avoid over-generalizations which may prove invalid and dangerous for the future of prospective teachers.

g. Data included on the student profile should be used for future studies and counseling on a personal basis, not for selection or prediction purposes. Persons with interests that are in conflict to those held by successful teachers or with insufficient farm experience could be counseled effectively. The data might be utilized in counseling persons who do not graduate to bring about the most personal satisfaction for each individual in accordance to his strengths and weaknesses.

2. In regard to the performance rating scale, two recommendations are made.

a. The scale should be revised. A five-point scale could be developed using the same items, but allowing performance to be evaluated on degree of attainment. The revised scale could be used for self-evaluation of teachers of vocational agriculture and for evaluating student-teaching performance. It is suggested that the revised scale include a section on some aspects of personality of the individual, particularly those aspects

involved in social adaptation.

b. The revised scale could effectively be utilized in future studies and for item analysis of the scale itself. It may, upon sufficient study, be converted to a forced-choice instrument for evaluating performance of teachers.

3. In regard to future studies and methods of study in this area, recommendations are made concerning the nature of proposed studies as well as techniques suggested.

a. A repeat study in this area should be conducted after an elapse of three to five years. Any new factors accumulated during this time should be studied with the present profile factors. It is believed that some individuals require considerable lengths of time to become accepted by people and to establish performance patterns of their own.

b. A study should be conducted on the profile data of teachers who drop-out from or never enter teaching vocational agriculture. Comparisons of findings should be made with teachers remaining in the field in relationship to performance of each respective group. It is believed that some prognostic value of the student-profile factors might be revealed by such a study.

c. A study should be made of the social competencies necessary for a teacher of vocational agriculture as a

preliminary step to construction of a social adaptability and personality scale that will discriminate between potentially "good" and "poor" teachers. Since effective teaching in vocational agriculture entails more than being a classroom practitioner, it is felt that some effort should be made in determining the necessary personality and social - as well as the scholastic, professional, and agricultural - characteristics desirable for teachers of vocational agriculture.

d. Future studies in this area should be longitudinal in nature. The same individuals should be followed over an extended period of time, through youth, in training, in teaching, and in drop-out from teaching. To do this effectively, the method of case-study procedure should be utilized. Efforts should be made to determine not only what the individual did or is doing, but why and the consequences of all activities and habits of the individual.

e. Whenever ratings are resorted to in future studies, careful study and use should be made of forced-choice rating instruments. This, in itself, would require considerable study in the development of valid and reliable instruments.

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APPENDICES

APPENDIX A

The Original Scale and Directions to Jury

Directions to Jury Evaluating the Vocational Agriculture Teacher Rating Scale

The descriptive statements included in the accompanying form are those which are believed to characterize the performance of teachers of vocational agriculture either favorably or unfavorably. These statements do not constitute all possible characteristics of teacher performance, but are assumed to be primary by the writer.

The jury is requested to evaluate each of the items included--first to determine if it characterizes vocational agriculture teacher performance; second, to determine if the item is included in the appropriate and a properly named division; third, to decide on the correct wording of the item that all raters might understand it clearly and without confusion as to its meaning. In performing this service, the jury is requested to make additions or deletions of items as they may seem advisable to assure the best evaluation of teacher performance.

The jury is then asked to weight each acceptable item by assigning a numerical score comparable to its relative importance in comparison to other items used in rating performance of teachers of agriculture. The jury is asked to assign positive numerical values from +1 to +5 to those items characterizing good aspects of performance and negative numerical values from -1 to -5 to those items which characterize poor aspects of teacher performance. Assign a value of zero (0) to any item that is neutral and irrelevant to teacher performance. For example, Item No. 1 under "A" which reads "Gets along well with other teachers in school system" might be assigned a value of plus 3 (+3) as it is an aspect of good teacher performance; whereas, Item No. 7 under "A" which reads "Makes excuses for failure to discharge responsibilities" might be assigned a negative or minus value of 2 (-2) as it is an aspect of poor teacher performance.

It is important for the jury to keep in mind the proposed procedure for administering this scale to the raters. The rating form will have three check columns preceded by the question: "Does this characterize the teacher's performance?" Any item that characterizes the teacher's performance will be checked by marking (x) in the column "Yes". If the item does not describe the teacher's performance "No" will be checked. If the rater sincerely believes that he has absolutely no basis for rating the teacher on any item, he will indicate this by marking (x) in the column "No Basis For Decision." Items which the rater indicates as having no basis for a decision will be deducted from the teacher's derived performance score and a correction adjustment will be made so as to not penalize the teachers final derived score.

Since this performance rating scale is of tremendous importance to the outcome of this study, the writer will welcome and appreciate greatly any improvements that might be made to the items, the scale form, and the technique of administering.

VOCATIONAL AGRICULTURE TEACHER PERFORMANCE RATING SCALE

NOTE: Rather than including the check columns on the rating form that will be used by the raters, the columns "Retain Item" and "Numerical Weight of Item" are provided for each member of the jury to indicate whether the item characterizes teacher performance and should be retained and the numerical weight that should be assigned to each item. If you believe that the item describes teacher performance and should be retained in the rating scale, place a check by the item under the column "Retain Item." For all items on the form, assign a numerical weight using the system explained in the accompanying directions. If you have any additional items that you believe should be included under any section, write the item in and assign it a numerical weight as for any other item.

	Retain Item	Numerical Weight of Item
A. Working With People in Community		
1. Gets along well with other teachers in school system.	___	___
2. Very autocratic; makes all decisions himself; submits only to persons above him in position..	___	___
3. Does not respect farmers' abilities; does not give farmers opportunity to aid in development of vocational program.	___	___
4. Works with all social and economic groups in community.	___	___
5. Participates actively in community activities .	___	___
6. Attends and supports community agriculture organizations.	___	___
7. Makes excuses for failure to discharge responsibilities.	___	___
8. Serves as a consultant and farm leader to farm people of his community	___	___
9. Shoulders his responsibilities and duties freely	___	___
10. Establishes workable relationships with key persons.	___	___
11.		

	Retain Item	Numerical Weight of Item
B. Maintaining Professional Standards and Relationships		
1. Dresses appropriately for all work, professional, social, and civic occasions. . . .	___	___
2. Continues his technical and professional training extensively by attending faculty meetings and workshops, in-service meetings, conferences, summer schools.	___	___
3. Remains at his present professional level without improving quality of his instruction .	___	___
4. Works with other teachers of agriculture in the area to develop cooperative agriculture programs such as livestock shows and sales . .	___	___
5. Supports and belongs to M.E.A., N.E.A., A.V.A., and other professional organizations.	___	___
6. Keeps up to date on educational thought and practices and technical agricultural practices .	___	___
7. Regards instruction of young farmers and adult farmers as a function of the school	___	___
8. Cooperates well with other agricultural agencies in the county, such as Cooperative Extension Service and Soil Conservation Service	___	___
9. Respects local school and community customs . .	___	___
10. Works cooperatively with leaders in teacher education, supervision on the state level . . .	___	___
11.		
C. Planning and Conducting General Activities		
1. Develops new classes	___	___
2. Prepares teaching materials and courses of study continuously	___	___
3. Maintains neat, adequate, up-to-date files of information necessary in his program	___	___

	Retain Item	Numerical Weight of Item
4. Submits records, information promptly when requested	___	___
5. Relies on subject matter previously learned; does not strive to keep well-informed on agricultural information	___	___
6. Surveys home farms of students and community to aid in development of his instructional program	___	___
7. Distributes instructional time equally between all-day, young and adult farmer groups	___	___
8. Utilizes the summer months effectively for development of local program	___	___
9. Critically evaluates his progress and improves his own program	___	___
10. Plans and revises long-time community agricultural program periodically with advisory committee, school authorities and local agricultural organizations	___	___
11. Utilizes community as an agricultural classroom; using materials, foods, fertilizers, etc., as sources of teaching materials . . .	___	___
12. Utilizes resource persons wisely	___	___
13. Organizes and assembles references, equipment, visual aids, etc. in up-to-date manner . . .	___	___
14. Maintains an agricultural atmosphere in the classroom	___	___
15. Is developing a program which meets most of the needs of all farm age groups in the community	___	___
16. Puts off starting new instructional groups for young farmer and/or adult farmers . . .	___	___
17. Teaches agricultural information rather than performing agricultural services for student on the farm	___	___

	Retain Item	Numerical Weight of Item
18.	____	____
D. Maintaining Administrative Relationships		
1. Participates in and helps maintain a total school program.	____	____
2. Supplies information that is complete and useful for the administrator	____	____
3. Operates the vocational agriculture program as a separate unit from total school program .	____	____
4. Encourages administrator to aid in development of a good vocational agriculture program in community	____	____
5. Does not keep administrator informed as to his plans, actions, or important phases of program	____	____
6. Shows outward resentment for administrative suggestions and rebellious towards requests .	____	____
7. Assists administrator in areas that his training can prove valuable	____	____
8. Regards the vocational agriculture program as his rather than the community's	____	____
9. Regards himself as being responsible to State Supervisor rather than Superintendent and Board of Education	____	____
10.	____	____
E. Developing and Maintaining Skill in Teaching		
1. Teaches each unit by the method to give greatest assistance to student in carrying out his farming program	____	____
2. Teaches instructional units without regard to season	____	____
3. Approaches the learner through his interests, experiences, and needs	____	____

	Retain Item	Numerical Weight of Item
4. Uses routine methods in conducting all classes	___	___
5. Provides maximum student participation in each class taught	___	___
6. Teaches each enterprise as a separate unit in itself without regard to integration and transfer value from one unit to another . .	___	___
7. Follows up instruction on the farm during and after teaching major farm enterprises as a regular and necessary part of effective instruction	___	___
8. Plans effective teaching methods and materials before teaching each unit to provide the most effective instruction possible	___	___
9. Teaches each unit without developing student and teacher objectives with students	___	___
10. Makes minimum preparation for each class taught, being satisfied to just get by in class	___	___
11. Relies heavily on technical subject matter without concern for needs and problems of students	___	___
12. Counsels "misfits" and extends pupil guidance at every opportunity	___	___
13. Establishes desirable attitudes, ideals and standards	___	___
14. Makes assignments, lectures, demonstrations clearly	___	___
15. Provides adequate teaching equipment and materials, references, bulletins, etc. . . .	___	___
16. Keeps classroom, equipment and materials organized for efficient use.	___	___
17.	___	___

	Retain Item	Numerical Weight of Item
F. Conducting Programs With All-Day Students		
1. Knows the needs of all-day students	____	____
2. Adapts instruction to needs of students, maturity and understanding level of students; makes adjustment for individual ability levels .	____	____
3. Does necessary remedial teaching to refresh students and emphasize units which may have previously received inadequate attention; supplements classroom instruction with private student consultations	____	____
4. Maintains good rapport with students	____	____
5. Provides instruction on the farm to aid students in adopting practices taught and to further learning	____	____
6. Strives constantly to motivate students to highest degree of interest	____	____
7. Assists students in planning educational and vocational goals	____	____
8. Develops teaching plans for all new units taught	____	____
9. Plans assembly programs for benefit of training vocational agriculture students in leadership	____	____
10.	____	____
G. Conducting Programs With Young Farmers and/or Adult Farmers		
1. Teaches leading farm enterprises that farmers are interested in and in which they have problems	____	____
2. Utilizes their experiences and interests whenever possible	____	____
3. Utilizes the best reference material available in instructing these groups	____	____

	Retain Item	Numerical Weight of Item
4. Plans and conducts out-of-school programs with aid from an active, functioning advisory committee.	___	___
5. Instructs out-of-school groups when pressed or requested	___	___
6. Holds classes when and where it will be most appropriate for farmers to attend . .	___	___
7. Keeps farmers informed of latest technical and scientific aspects of agriculture . .	___	___
8. Maintains good interest in programs as evidenced by farmers attending a majority of classes held	___	___
9. During regular farm visits, provides training appropriate to type of farming engaged in by young and/or adult farmer .	___	___
10. Keeps community informed of programs being conducted	___	___
11. Invites interested farmers to join out-of-school programs	___	___
12. Has key individuals assist in organization and recruitment of new classes	___	___
13. Utilizes agricultural agencies and key personnel in area to assist in instruction of these groups	___	___
14. Maintains a complete, up-to-date file on all former students	___	___
15. Provides leadership training in adult activities	___	___
16.	___	___
H. Making Farm Visits		
1. Visits with farm family or a member of family without actually accomplishing much educationally	___	___

		Retain Item	Numerical Weight of Item
2.	Personally views each project, looks for ways of improvement, offers encouragement and suggestions for improvement, gives student incentive to carry out the best possible farming practices	____	____
3.	Makes farm visits without informing student that he plans to do so	____	____
4.	Makes visits so short in duration that little supervision occurs	____	____
5.	Integrates classroom instruction to farm visits	____	____
6.	Checks student's records of his farming program and evaluates progress being made.	____	____
7.	Encourages students to increase scope and quality of projects annually as a means to becoming established in farming	____	____
8.	Makes farm demonstrations clear, convincing, and interesting. Has student perform operations taught	____	____
9.		____	____
I.	Supervising and Developing Farming Programs		
1.	Explains purposes of supervised farming program to parents at beginning of student's first year in vocational agriculture	____	____
2.	Has standards to be met from one year to next; students must maintain within a reasonable degree of tolerance a certain number of production, supplementary and improvement farming projects. Acceptable projects are those which trainee expects to be engaged in as a farmer	____	____
3.	Can conduct and perform any jobs and skills that arise in supervised farming programs of his students	____	____

	Retain Item	Numerical Weight of Item
4. Relates instruction constantly to proficiency and establishment in farming . .	____	____
5. Advises students regarding problems in their supervised farming programs	____	____
6. Demonstrates approved practices in class, on farms, that students might utilize them at home	____	____
7. Provides opportunity for students to see good farming projects by tours and visitations to outstanding students and farmers .	____	____
8. Allows students to do whatever they desire in way of farming programs; shows no particular concern over their vocational interest	____	____
9. Keeps adequate supervised farming records of all students	____	____
10. Makes as few farm visits as he can get by with	____	____
11.	____	____
J. Teaching Farm Mechanics		
1. Keeps up to date on changing trends and needs in farm mechanics	____	____
2. Maintains adequate shop supplies to do best teaching	____	____
3. Maintains an efficient system of tools servicing, checking, and storing	____	____
4. Purchases tools and equipment, whenever possible, that are useful to students and farmers of community	____	____
5. Can demonstrate skills and related jobs efficiently in this area and knows how to teach jobs understandingly to pupils	____	____

	Retain Item	Numerical Weight of Item
6. Provides shop and farm safety education as a regular phase of farm mechanics . .	___	___
7. Has shop facilities color conditioned by approved color dynamics principles for school farm-shop safety	___	___
8. Allows students to repair, recondition and construct things needed at home on the farm in their supervised farming programs .	___	___
9. Requires students to become reasonably skilled in performing farm mechanics skills and jobs that are normally needed in the community in farming	___	___
10. Provides first-aid equipment in school-farm shop	___	___
11. Arranges tools, equipment and machines orderly to provide maximum safety and efficient operation	___	___
12. Organizes farm mechanics classes, insofar as possible, to reduce crowded and hazardous working conditions	___	___
13. Remains in shop during any shop activity to supervise, teach, demonstrate, and assure maximum safety	___	___
14. Has established rules and regulations regarding student conduct in shop	___	___
15. Permits no pranking and "horse-play" in shop, projects undertaken are agricultural .	___	___
16. Keeps shop clean and organized	___	___
17. Provides individual instruction in farm mechanics during supervisory visits	___	___
18. Maintains a favorable relationship to industrial arts teacher	___	___
19.	___	___

	Retain Item	Numerical Weight of Item
K. Conducting and Advising Future Farmers of America		
1. Has students develop goals for themselves and the Chapter	____	____
2. Provides leadership training to all F.F.A. members.	____	____
3. Promotes a variety of F.F.A. activities.	____	____
4. Has F.F.A. members attend regularly all chapter meetings held	____	____
5. Holds at least 2 or more chapter meetings monthly	____	____
6. Has active F.F.A. committees planning and carrying out an approved (by superintendent or principal) program of work	____	____
7. Sends or accompanies official delegates to State F.F.A. convention	____	____
8. Strives to advance students in systematic degree advancement	____	____
9. Has chapter conduct and participate in school and community improvement programs	____	____
10. Understands that F.F.A. is an integral part of vocational agriculture and utilizes it to better instructional program	____	____
11. Provides students opportunity to train and participate in state-sponsored F.F.A. contests and activities	____	____
12. Promotes thrift, scholarship, recreation and sense of community concern in students through F.F.A. aims and objectives	____	____

		Retain Item	Numerical Weight of Item
13.	Supervises educational F.F.A. tours, Parent-Son Banquets, recreational and social activities	____	____
14.	Supervises school farms, school forests, buying and selling projects, etc.	____	____
15.	Aids students in making degree advancement applications, F.F.A. reports, etc.	____	____
16.		____	____

APPENDIX B

Revision of Original Scale
(Used in Trial Test)

VOCATIONAL AGRICULTURE TEACHER PERFORMANCE RATING SCALE

DIRECTIONS: For any item describing the teacher's performance, check by marking (x) in the column "YES". Check under the column "NO" if it does not describe the teacher's performance. If you have absolutely no basis for a decision on any item, mark (x) under the column "?". Omit no items and make only one check for each item.

	YES	NO	?
A. Working With People in Community			
1. Gets along well with other teachers in school system. . . .	___	___	___
2. Does not respect farmer's abilities; does not give farmers opportunity to aid in development of vocational program .	___	___	___
3. Participates actively in community activities	___	___	___
4. Makes excuses for failure to discharge responsibilities . .	___	___	___
5. Serves as a consultant to farm people in community	___	___	___
6. Accepts his responsibilities and duties freely	___	___	___
7. Establishes good working relationships with key persons. .	___	___	___
B. Maintaining Professional Standards and Relationships			
1. Continues his technical and professional training by attending faculty meetings, workshops, in-service meetings, conferences, summer school	___	___	___
2. Remains at his present professional level without improving quality of his instruction .	___	___	___
3. Supports and belongs to M.E.A., N.E.A., A.V.A., M.A.T.V.A. and other professional organizations . . .	___	___	___
4. Keeps up to date on educational thought and technical agricultural practices	___	___	___
5. Regards instruction of young and adult farmers as a function of the school	___	___	___
6. Cooperates well with other agricultural agencies in the county . .	___	___	___
7. Respects local school and community customs. .	___	___	___
8. Works cooperatively with leaders in teacher education supervision on the state level . . .	___	___	___

	YES	NO	?
C. Planning and Conducting General Activities			
1. Maintains neat, adequate, up-to-date files of information necessary in his program	___	___	___
2. Submits records, information promptly.	___	___	___
3. Relies on subject matter previously learned; does not strive to keep well-informed on agricultural information.	___	___	___
4. Critically evaluates his progress and improves his own program	___	___	___
5. Plans and revises long-time community agricultural program periodically with such organizations as advisory committee, school authorities and local agricultural organizations	___	___	___
6. Utilizes community as an agricultural classroom; using fertilizers, etc. as sources of teaching materials	___	___	___
7. Utilizes resource persons effectively.	___	___	___
8. Organizes and assembles references, equipment, visual aids for effective instruction	___	___	___
9. Maintains an agricultural atmosphere in the classroom . .	___	___	___
10. Is developing a program which meets most needs of all farm age groups in the community. . .	___	___	___
11. Puts off starting new instructional groups for young and/or adult farmers. .	___	___	___

	YES	NO	?
D. Maintaining Administrative Relationships			
1. Cooperates in maintaining a total school program . .	___	___	___
2. Supplies information that is complete and useful for the administrator . . .	___	___	___
3. Works with administrator in development of a good vocational agriculture program in community . . .	___	___	___
4. Shows outward resentment for administrative suggestions and rebellious towards requests.	___	___	___
5. Regards the vocational agriculture program as his own rather than the community . .	___	___	___
6. Regards himself as being responsible to State Supervisor rather than Superintendent and Board of Education . .	___	___	___
7.			
E. Utilizing Acceptable Methods of Teaching			
1. Teaches each unit by the method which gives greatest			

	YES	NO	?
assistance to student in carrying out his farming program	___	___	___
2. Teaches instructional units without regard to season	___	___	___
3. Approaches the learner through his interests, experiences, and needs	___	___	___
4. Encourages maximum student participation in each class taught.	___	___	___
5. Follows up instruction on the farm during and after teaching as a regular and necessary part of effective instruction.	___	___	___
6. Plans effective teaching methods and secures materials before teaching each unit to provide the most effective instruction possible	___	___	___
7. Teaches each unit without considering objectives with students	___	___	___
8. Teaches desirable attitudes, ideals and standards . . .	___	___	___
9. Keeps classroom, equipment and materials organized for efficient use. .	___	___	___
10. Prepares teaching materials and courses of study as needed	___	___	___
11. Surveys home farms of students and community to aid in development of his instructional program	___	___	___
12. Utilizes the summer months effectively for development of local program . . .	___	___	___
F. Conducting Programs With All-Day Students			
1. Knows the needs of all-day students. .	___	___	___
2. Adapts instruction to needs of students, maturity and understanding level of students; makes adjustment for individual ability levels . .	___	___	___
3. Does necessary reteaching to refresh students and emphasize units which may have previously received inadequate attention	___	___	___
4. Maintains good rapport with students	___	___	___
5. Provides instruction on the farm to aid students in adopting practices taught and to further learning.	___	___	___
6. Motivates students to a high degree of interest.	___	___	___
7. Assists students in planning educational and vocational goals.	___	___	___
8. Develops teaching plans for all new units taught . . .	___	___	___
G. Conducting Programs With Young Farmers and/or Adult Farmers			
1. Utilizes experiences and interests of farmers whenever possible	___	___	___

	YES	NO	?
2. Bases teaching on needs of individuals as determined by surveys and observation	___	___	___
3. Utilizes the best reference material available in instructing these groups .	___	___	___
4. Holds classes when and where it will be most appropriate for farmers to attend .	___	___	___
5. Keeps farmers informed of latest technical and scientific aspects of agriculture through classes, radio, T.V., etc.	___	___	___
6. Maintains good interest in programs as evidenced by farmers attending a majority of classes held . .	___	___	___
7. During regular farm instruction, provides training appropriate to type of farming engaged in by young and/or adult farmer	___	___	___
8. Keeps community informed of programs being conducted . .	___	___	___
9. Encourages all farmers to join out-of-school programs. .	___	___	___
10. Has key individuals assist in organization and recruitment of new classes . . .	___	___	___
11. Utilizes agricultural agencies and key personnel in area to assist in instruction of these groups . . .	___	___	___
12. Maintains a complete, up-to-date file on all former students for potential membership in instructional programs. . .	___	___	___
H. Providing On-Farm Instruction			
1. Personally views each farm program, looks for ways of improvement, offers encouragement and suggestions, gives students incentive to carry out the best possible farming practices.	___	___	___
2. Integrates classroom instruction to farm visits. .	___	___	___
3. Checks student's records of his farming program and evaluates progress being made	___	___	___
4. Encourages students to increase scope and quality of projects as a means to becoming established in farming	___	___	___
5. Makes farm demonstrations clear, convincing, and interesting. Has student perform operations taught.	___	___	___

	YES	NO	?
I. Supervising and Developing Farming Programs			
1. Explains purposes of supervised farming program to parents before student enrolls for vocational agriculture	___	___	___
2. Has standards to be met from one year to next. Acceptable projects are those which trainee expects to be engaged in as a farmer	___	___	___
3. Can conduct and perform jobs and skills that arise in supervised farming programs of his students . . .	___	___	___
4. Counsels with students regarding problems in their supervised farming programs	___	___	___
5. Demonstrates approved practices in class, on farms that students might utilize them at home	___	___	___
6. Provides opportunity for students to see good farming projects by tours and visitations to outstanding students and farmers.	___	___	___
7. Keeps adequate supervised farming records of all students	___	___	___
8. Encourages production standards for students on basis of student's farm and student's ability	___	___	___
9. Teaches students to use records of farming programs to improve their programs . . .	___	___	___

	YES	NO	?
J. Teaching Farm Mechanics			
1. Keeps up to date on changing trends and needs in farm mechanics.	___	___	___
2. Requisitions adequate shop supplies to do best teaching.	___	___	___
3. Recommends purchase of tools and equipment that are useful to students and farmers of community. . . .	___	___	___
4. Provides shop and farm safety education as a regular phase of farm mechanics.	___	___	___
5. Provides first-aid equipment in school-farm shop	___	___	___
6. Arranges tools, equipment and machines orderly to provide maximum safety and efficient operation . .	___	___	___
7. Organizes farm mechanics classes to reduce crowded and hazardous working conditions.	___	___	___
8. Remains in shop during any shop activity to supervise, teach, demonstrate, and assure maximum safety	___	___	___
9. Has established rules and regulations regarding student conduct in shop. . . .	___	___	___

	YES	NO	?
10. Permits no pranking and "horse-play" in shop	—	—	—
11. Projects undertaken are agricultural . .	—	—	—
12. Keeps shop clean and organized.	—	—	—
13. Provides individual instruction in farm mechanics during on-farm instruction . .	—	—	—
14. Maintains a favorable relationship to industrial arts teacher.	—	—	—
15. Evaluates farm shop activities and objectives continuously	—	—	—

K. Conducting and Advising Future Farmers of America

	YES	NO	?
1. Has students develop goals for themselves and the Chapter. . .	—	—	—
2. Provides leadership training to all F.F.A. members.	—	—	—
3. Promotes a variety of F.F.A. activities.	—	—	—
4. Encourages F.F.A. members to attend regularly all chapter meetings held.	—	—	—
5. Holds at least 2 or more chapter meetings monthly	—	—	—
6. Has active F.F.A. committees planning and carrying out an approved (by superintendent or principal) program of work . . .	—	—	—
7. Strives to help students in systematic degree advancement. .	—	—	—
8. Has chapter conduct and participates in school and community improvement programs.	—	—	—
9. Understands that F.F.A. is an integral part of vocational agriculture and utilizes it to better instructional program.	—	—	—
10. Promotes thrift, scholarship, recreation and sense of community concern in students through F.F.A. aims and objectives. . .	—	—	—
11. Supervises educational F.F.A. tours, Parent-Son Banquets, recreational and social activities. . .	—	—	—
12. Aids students in making degree advancement applications, F.F.A. reports, etc.	—	—	—
13. Uses F.F.A. activities to strengthen Supervised Farming Programs of students. . .	—	—	—
14. Encourages student participation through organized committee work.	—	—	—

APPENDIX C

Final Revised Copy of Scale with Official Weights

VOCATIONAL AGRICULTURE TEACHER PERFORMANCE RATING SCALE

DIRECTIONS: For any item describing the teacher's performance in a majority of cases, check by marking (x) in the column "YES". Check under the column "NO" if it does not describe the teacher's performance. If you have absolutely no basis for a decision on any item, mark (x) under the column "?". Omit no items and make only one check for each item. Your rating is strictly confidential.

	YES	NO	?
A. Working With People in Community			
1. Gets along well with other teachers in school system.....	4.4		
2. Does not respect farmer's abilities; does not give farmers opportunity to aid in development of vocational program.	-3.6		
3. Participates actively in community activities.	3.3		
4. Makes excuses for failure to discharge responsibilities..	-3.4		
5. Serves as a consultant to farm people.	4.5		
6. Accepts his responsibilities and duties freely. . .	4.0		
7. Establishes good working relationships with key persons.	3.7		
B. Maintains Professional Standards and Relationships			
1. Continues his technical and professional training by attending faculty meetings, workshops, in-service meetings, conferences, summer school.....3.6			
2. Remains at his present professional level without improving quality of his instruction..	-3.3		
3. Supports and belongs to M.E.A., N.E.A., A.V.A., M.A.T.V.A. and other professional organizations.....	3.2		
4. Keeps up to date on educational thought and technical agricultural practices.....	4.2		
5. Regards instruction of young and adult farmers as a function of the school	4.3		
6. Cooperates well with other agricultural agencies in the county...	3.2		
7. Respects local school and community customs. .	3.5		

YES NO ?

8. Works cooperatively with leaders in teacher education and supervision on the state level... 3.2 ___
9.

C. Planning and Conducting General Activities
1. Maintains neat, adequate up-to-date file of necessary information. . . . 3.8 ___
2. Submits records, information promptly. 3.0 ___
3. Relies on subject matter previously learned; does not strive to keep well-informed on agricultural information. . . . . -3.4 ___
4. Critically evaluates his progress and improves his own program. . . . . 3.8 ___
5. Plans and revises long-time community agricultural program periodically with such groups as agricultural advisory committee and school authorities..... 3.9 ___
6. Utilizes community and its resources as an agricultural classroom.. . . . 4.3 ___
7. Utilizes resource persons effectively. 3.5 ___
8. Organizes and assembles references, equipment, etc. for effective instruction. . . . . 3.8 ___

YES NO ?

9. Maintains an agricultural atmosphere in the classroom. 3.1 ___
10. Is developing a program which meets most needs of all farm-age groups in the community. . . 3.9 ___
11. Puts off starting new instructional groups for young and/or adult farmers. . . . . -3 ___

D. Maintaining Administrative Relationships
1. Cooperates in maintaining a total school program. . . 4.2 ___
2. Supplies information that is complete and useful for the administrator. 3.8 ___
3. Works with administrator in development of a good vocational agriculture program. 3.5 ___
4. Shows outward resentment for administrative suggestions and rebellious towards requests. -4.2 ___
5. Regards the vocational agriculture program as his own rather than the community. . . . -3.2 ___

	YES	NO	?
6. Regards himself as being responsible to State Supervisor rather than Superintendent and Board of Education	-3.7		
E. Utilizing Acceptable Methods of Teaching			
1. Teaches each unit by the method which gives greatest assistance to students in carrying out his farming program. .	4.2		
2. Teaches instructional units without regard to season	-3		
3. Approaches the learner through his interests, experiences and needs.	4		
4. Encourages maximum student participation in each class taught.	3.9		
5. Follows up instruction on the farm during and after teaching as a necessary part of effective instruction	4.6		
6. Plans methods and secures materials before teaching each unit to provide for effective instruction.	3.9		
7. Teaches each unit without considering objectives with students.	-3.1		
8. Teaches desirable attitudes, ideals and standards. . .	4.1		
9. Keeps classroom, equipment and materials organized for efficient use.	3.9		
10. Prepares teaching materials and courses of study as needed.	3.6		
11. Surveys home farms of students and community to aid in development of instructional program.	3.6		
12. Utilizes the summer months effectively for development of local program. .	3.6		
F. Conducting Programs With All-Day Students			
1. Knows the needs of all-day students. . . .	4.2		
2. Adapts instruction to needs of students, maturity, ability and understanding level of students.	4.4		
3. Does necessary re-teaching to refresh students and emphasizes units which may have received inadequate attention. . . .	3.8		
4. Maintains good rapport with students. . . .	4.1		
5. Provides instruction on the farm to aid students in adopting practices taught and to further learning....	4.6		

YES NO ?

6. Motivates students to a high degree of interest. . . . 4.2 ___
7. Assists students in planning educational and vocational goals. . . . . 4 ___
8. Develops teaching plans for all new units taught . . . 4 ___

G. Conducting Programs With Young Farmers and/or Adult Farmers
1. Utilizes experiences and interests of farmers. . . . . 3.8 ___
2. Bases teaching on needs of individuals as determined by surveys and observation. . . . . 4.6 ___
3. Utilizes the best reference material available in instructing these groups... 3.9 ___
4. Holds classes when and where it will be most appropriate for farmers. . . . . 3.5 ___
5. Keeps farmers informed of latest technical and scientific aspects of agriculture through classes, radio, T.V., etc. . . . . 3.2 ___
6. Maintains good interest in programs as evidenced by farmers attending a majority of classes held . . . 4.1 ___
7. During regular farm instruction, provides training appropriate to type of farming engaged in by young and/or adult farmer. . . . 4 ___

YES NO ?

8. Keeps community informed of programs being conducted. . . 3.5 ___
9. Encourages all farmers to join out-of-school programs. 3.5 ___
10. Has key individuals assist in organization and recruitment of new classes. 3.6 ___
11. Utilizes agricultural agencies and key personnel in area to assist in instruction of these groups. . 3.2 ___
12. Maintains a complete, up-to-date file on all former students for potential membership in instructional programs. . . . . 3.3 ___

H. Providing On-Farm Instruction
1. Personally views and studies each farm program, offers encouragement and suggestions, gives students incentive to carry out the best possible farming practices. . . . 4 ___
2. Integrates classroom instruction to farm visits. 4.3 ___
3. Checks student's records of his farming program and evaluates progress being made. . . . 3.3 ___

	YES	NO	?
4. Encourages students to increase scope and quality of projects as a means to becoming established in farming. 4.3			
5. Makes farm demonstrations clear, convincing, and interesting. Has student perform operations taught. 3.8			
I. Supervising and Developing Farming Programs			
1. Explains purposes of supervised farming program to parents before students enroll for vocational agriculture. . . . 4.2			
2. Has standards to be met from one year to next. Acceptable projects are those which trainee expects to be engaged in as a farmer. 3.5			
3. Can conduct and perform jobs and skills that arise in supervised farming programs of his students. . . 3.3			
4. Counsels with students regarding problems in their supervised farming programs. 4.6			
5. Demonstrates approved practices in class, on farms that students might utilize them at home. 4			
6. Provides opportunity for students to see good farming programs by tours and visitations. 3.8			
7. Keeps adequate supervised farming records of all students. . . 3.8			
8. Encourages production standards for students on basis of student's farm and ability . . 4.2			
9. Teaches students to use records of farming programs to improve their programs. . . 4.4			
J. Teaching Farm Mechanics			
1. Keeps up to date on changing trends and needs in farm mechanics. . . 3.6			
2. Requisitions adequate shop supplies to do best teaching. 3.4			
3. Recommends purchase of tools and equipment that are useful to students and farmers of community . . . 3.1			

	YES	NO	?
4. Provides shop and farm safety education as a regular phase of farm mechanics.	4		
5. Provides first-aid equipment in school-farm shop. .	4.2		
6. Arranges tools, equipment and machines orderly to provide maximum safety and efficient operation.	3.5		
7. Organizes farm mechanics classes to reduce crowded and hazardous working conditions. . .	3.6		
8. Remains in shop during any shop activity to supervise, teach, demonstrate, and assure maximum safety. . .	4		
9. Has established rules and regulations regarding student conduct in shop	4		
10. Permits no pranking and "horse-play" in shop	4		
11. Projects undertaken are agricultural .	4		
12. Keeps shop clean and organized. . .	3.8		
13. Provides individual instruction in farm mechanics during on-farm instruction . .	3.8		
14. Maintains a favorable relationship to industrial arts teacher.	4.2		
15. Evaluates farm shop activities and objectives continuously	3		

	YES	NO	?
K. Conducting and Advising Future Farmers of America			
1. Has students develop goals for themselves and the Chapter.	4.4		
2. Provides leadership training to F.F.A. members.	4.1		
3. Promotes a variety of F.F.A. activities. . . .	3.4		
4. Encourages F.F.A. members to attend regularly all chapter meetings held. .	3		
5. Holds at least 2 or more chapter meetings monthly . . .	3		
6. Has active F.F.A. committees planning and carrying out an approved (by superintendent or principal) program of work	4.1		
7. Strives to help students in systematic degree advancement	3.4		
8. Has chapter conduct and participates in school and community improvement programs.	3.5		

	YES	NO	?
9. Utilizes F.F.A. as an integral part of vocational agriculture to better instructional program .	4.2		
10. Promotes thrift, scholarship, recreation and community concern in students through F.F.A..	3.5		
11. Supervises educational tours, recreational and social activities.	3.6		
12. Aids students in making degree advancement applications, F.F.A. reports.	3		
13. Uses F.F.A. activities to strengthen Supervised Farming Programs of students.	.4		
14. Encourages student participation through organized committee work	4		

APPENDIX D

Follow-Up Letter on Teacher Performance Scale in Trial Study

206 Morrill Hall
Michigan State College
East Lansing, Michigan
August 3, 1953

Superintendent of Schools

Dear Mr. :

On July 13, you received a teacher performance rating scale from our department to be completed for your teacher of agriculture mentioned. It is of great importance to get a rating of teachers who were graduated during the past 5 years. You probably were on vacation and not in your office when the form was mailed. However, your participation in this research should contribute to better guidance and selection of teachers of agriculture in Michigan.

In case your form was lost or misplaced, I would be glad to supply you another. I appreciate your cooperation and thank you for your consideration.

Sincerely yours,

George W. Sledge

GWS/ds

APPENDIX E

Letter to Administrator and Endorsement of Study

206 Morrill Hall
Michigan State College
East Lansing, Michigan
July 13, 1953

Superintendent of Schools

Dear Mr. :

I am making a study to determine the relationship between pre-teaching characteristics of prospective teachers and their subsequent performance in teaching vocational agriculture. This study should serve to improve the guidance and selection of future teachers of agriculture. You are, I am sure, interested in helping to continuously improve the quality of teachers in our state. As an administrator, you are acquainted with the performance of your teacher of agriculture and could contribute greatly in the improvement of our program of selection and guidance by objectively completing the enclosed teacher performance rating scale.

Each teacher of agriculture is to be checked on performance by three sources: his administrator, a state supervisor, and a teacher-trainer. As you are more closely associated with Mr. _____, I am very frankly most interested in receiving your rating of him. The rating form is coded, and no names need be written on it. The information you supply is strictly confidential.

For any item that describes your teacher in a majority of cases, check the item under "yes". Other directions are provided on the scale.

For your convenience, I am enclosing a self-addressed, stamped envelope for use in returning the completed teacher performance rating scale by July 31, 1953, if possible. Thank you very much for your time and consideration.

Yours very truly,

George W. Sledge

Dear Mr. :

We wish to heartily endorse this important inquiry which should be of value to us in teacher education. We hope you will find it possible to cooperate with Mr. Sledge in this study.

Sincerely,

H. M. Byram, Head
Department of Vocational Education
Michigan State College

APPENDIX F

Follow-up Letter to Administrators
(First Follow-up Letter)

206 Morrill Hall
Michigan State College
East Lansing, Michigan
October 16, 1953

Dear Mr. Superintendent:

On October 1, you received a teacher performance rating scale from our department to be completed for your teacher of agriculture mentioned. It is of great importance to get a rating of each teacher who has graduated during the past 5 years. As this phase of the study is most important to the final outcome, I would appreciate receiving your rating at your earliest convenience. Your participation in this research should contribute to better the guidance and selection of future teachers of agriculture in Michigan.

In case your form was lost or misplaced, I am including another one that is coded for your teacher of agriculture mentioned in the previous correspondence. If you have returned the completed scale during the lapse of my writing, please disregard this letter.

I appreciate your cooperation and thank you kindly for your consideration.

Sincerely yours,

George W. Sledge

Second Follow-up Letter

206 Morrill Hall
Michigan State College
East Lansing, Michigan
October 26, 1953

Dear Mr. :

I am sure that you are extremely busy with the administration of your school, but may I ask for your cooperation in completing the teacher performance rating scale. I am sincerely trying to contribute to the betterment of the teacher-training program in Michigan in this doctoral study. I thoroughly appreciate the wide support and cooperation that school administrators throughout the state have given me. With your return I will be able to compile the complete data that will compose the body of this study.

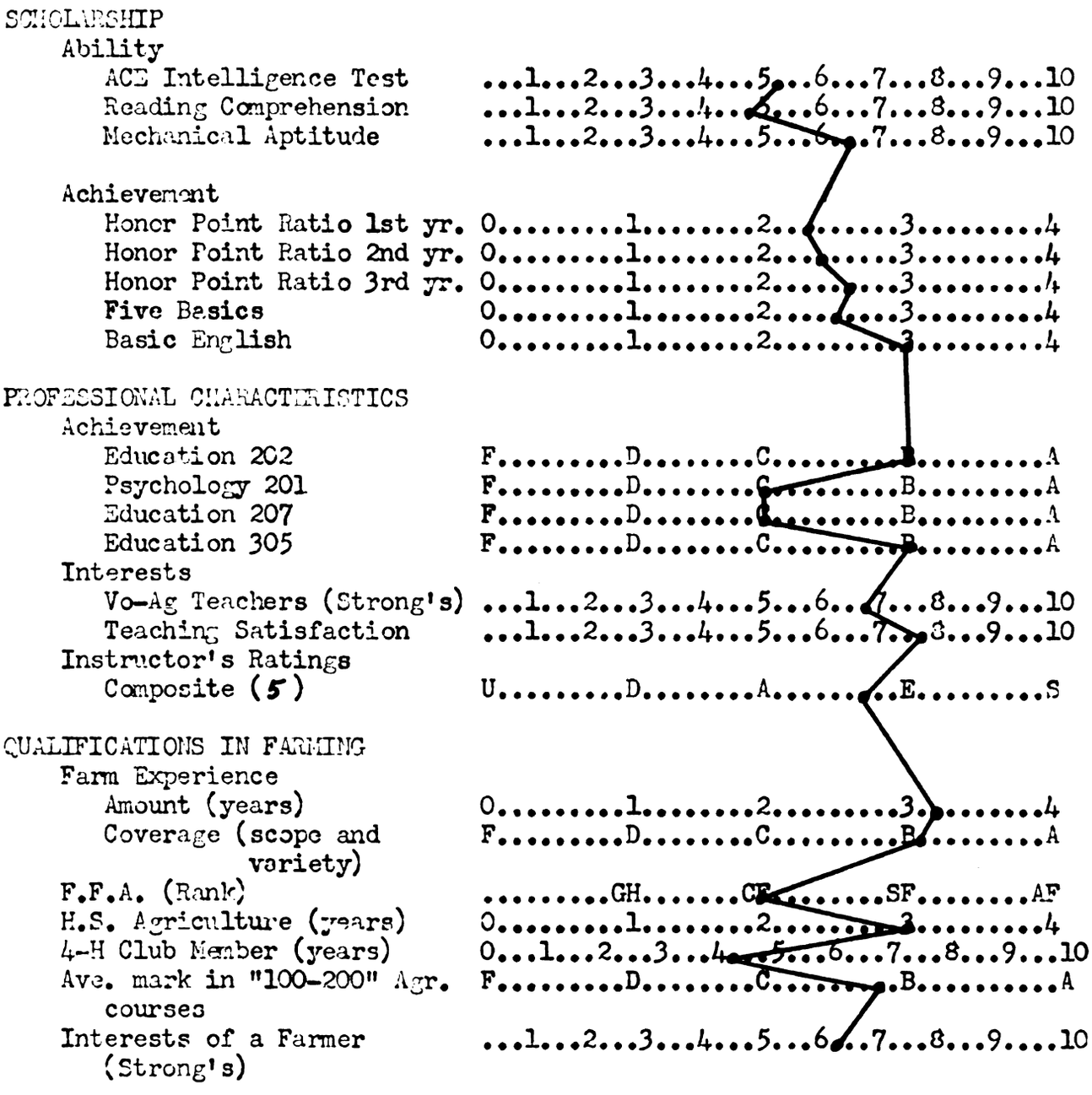
Will you contribute a few minutes of your time to this effort? Thank you so much.

Sincerely yours,

George W. Sledge

APPENDIX G

PROFILE OF PROSPECTIVE TEACHERS OF VOCATIONAL AGRICULTURE



APPENDIX H

SUMMARY FOR SUB-SECTIONAL SCORES ON TEACHER PERFORMANCE RATING SCALE ON 88 TEACHERS OF VOCATIONAL AGRICULTURE IN MICHIGAN

Teacher Code Number	Rated By:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	100	100	100	100	100	*	100	100
1	T.E.	100	74.6	100	62.8	85.2	100	76.5	100	100	**	100	91.7
	Sup.	***											***
	Adm.	100	100	45.3	100	100	100	51.1	100	100	**	100	87.4
2	T.E.	-2.5	74.4	100	100	100	100	100	100	100	**	100	90.1
	Sup.	47.4	40.7	65.1	62.8	65.1	100	**	100	100	**	100	78.0
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
3	T.E.	100	100	100	100	100	100	100	100	100	72.2	100	98.1
	Sup.	100	100	100	62.8	73.2	100	81.3	100	100	100	100	92.6
	Adm.	100	73.6	30.1	100	63.9	100	-100	100	51.3	100	88.3	72.5
4	T.E.	74.7	100	34.2	100	-6.1	34.1	100	-3.6	100	-55.1	75.2	53.8
	Sup.	100	69.8	65.0	100	100	100	-100	100	100	100	100	81.4
	Adm.	-0-											-0-
5	T.E.	100	77.5	100	100	100	100	100	100	100	*	100	98.1
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	9.1	100	100	100	100	100	100	100	100	100	100	88.0
6	T.E.	100	100	20.9	100	10.6	32.5	22.8	100	100	**	100	69.2
	Sup.	10.0	46.7	-5.9	100	61.3	66.8	**	45.9	100	**	60.3	50.6

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	28.3	100	66.4	100	52.6	100	34.9	100	73.4	**	100	75.9
7	T.E.	100	100	-50.8	100	-3.6	1.2	100	38.7	-61.3	**	100	41.5
	Sup.	100	100	81.4	100	100	100	*	100	100	*	100	97.2
	Adm.	100	100	100	100	100	100	80.0	100	100	100	100	97.9
8	T.E.	-53.9	-66.9	-60.1	52.0	-100	-75.4	**	-100	-67.0	**	-100	-72.6
	Sup.	15.2	66.0	65.1	31.8	79.0	100	-100	100	100	19.3	100	58.5
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
9	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	86.8	100	100	100	100	*	100	98.2
	Adm.	73.2	74.7	21.4	100	17.8	-44.6	17.5	100	36.5	19.8	34.3	36.6
10	T.E.	34.7	12.0	30.0	62.8	-65.7	-66.0	78.5	-30.6	12.9	64.4	100	27.7
	Sup.	57.2	100	57.8	100	49.7	100	100	100	100	-34.2	100*	65.1 †
	Adm.	69.5	100	100	100	100	100	85.1	100	100	58.0	88.3	89.2
11	T.E.	100	100	100	100	100	74.8	100	100	100	71.9	100	93.8
	Sup.	100	100	44.5	100	78.2	100	100	100	100	100	100	92.1
	Adm.	100	69.8	60.5	100	100	100	13.5	100	76.5	*	84.0	83.6
12	T.E.	100	22.8	57.0	100	81.9	100	*	100	100	**	100	83.9
	Sup.	74.7	100	51.9	100	82.7	100	**	100	100	**	100	88.8
	Adm.	47.9	100	49.4	-1.8	100	100	82.9	100	76.5	100	84.0	79.1
13	T.E.	100	100	65.0	100	100	75.9	25.0	100	74.4	84.6	100	83.0
	Sup.	100	77.5	100	100	100	75.9	70.6	100	100	100	100	93.1

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	58.3	100	100	100	**	100	100	100	100	95.8
14	T.E.	100	40.6	-11.5	100	-30.8	-16.6	**	28.9	44.2	59.8	100	40.8
	Sup.	100	100	56.6	100	79.7	100	**	100	100	*	100	91.4
	Adm.	60.5	100	100	-35.8	78.6	100	100	100	100	82.6	79.4	85.3
15	T.E.	100	100	100	100	-8.4	100	100	100	100	100	100	86.8
	Sup.	100	100	75.7	100	100	100	*	100	100	100	100	97.6
	Adm.	100	74.6	2.8	100	11.2	20.7	85.0	20.8	76.5	36.1	56.6	46.4
16	T.E.	100	29.1	30.9	100	-89.9	-39.9	100	50.6	50.3	*	36.8	28.7
	Sup.	100	100	100	100	100	72.3	100	100	100	100	100	97.9
	Adm.	100	100	100	100	100	100	**	100	100	100	100	100
17	T.E.	100	34.3	37.0	100	100	100	100	100	77.8	100	100	86.0
	Sup.	***											***
	Adm.	100	100	100	71.7	100	100	100	100	100	100	100	98.3
18	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	80.9	100	81.3	100	*	100	100	100	100	95.7
	Adm.	100	100	54.8	100	100	100	**	100	100	100	100	95.6
19	T.E.	100	17.8	55.8	100	100	100	100	100	100	71.5	100	87.1
	Sup.	***											***
	Adm.	100	100	84.8	100	100	100	68.0	100	100	73.7	100	91.3
20	T.E.	100	100	11.0	65.2	100	100	41.2	100	100	82.6	100	86.6
	Sup.	100	100	100	100	100	100	*	100	75.9	*	100	97.0
	Adm.	-0-											-0-
21	T.E.	74.7	-5.7	-10.0	7.1	17.4	-47.7	-34.6	-100	-12.3	-20.3	81.7	-7.4
	Sup.	72.5	100	100	66.4	100	75.9	100	56.3	100	100	100	91.7

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
22	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	100	100	100	84.2	100	100	100	100	98.2
23	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	100	100	*	100	100	100	100	100
	Adm.	100	77.5	100	100	100	100	82.0	100	100	100	100	96.7
24	T.E.	100	100	100	62.8	86.8	100	100	100	100	100	100	96.2
	Sup.	100	40.2	100	100	100	100	57.0	100	100	100	100	91.0
	Adm.	100	77.5	100	100	100	100	100	100	100	100	100	98.4
25	T.E.	75.5	100	29.6	100	100	100	80.4	100	100	100	100	89.6
	Sup.	100	100	100	100	100	100	78.6	100	100	100	100	97.8
	Adm.	72.5	74.7	100	100	100	100	*	100	100	100	100	96.1
26	T.E.	62.1	100	100	62.8	100	100	100	100	100	100	100	95.5
	Sup.	100	70.4	52.9	100	83.4	100	*	100	100	100	100	90.9
	Adm.	75.5	100	100	100	100	100	85.6	100	100	86.3	100	94.8
27	T.E.	36.4	40.7	65.4	62.8	86.4	100	100	100	100	100	100	84.9
	Sup.	100	100	40.8	100	100	100	**	100	100	**	100	91.7
	Adm.	74.7	76.8	69.1	67.2	100	71.8	100	100	100	81.9	100	87.1
28	T.E.	100	-1.5	75.1	100	82.8	100	-42.8	56.3	80.4	12.0	100	69.0
	Sup.	100	68.6	85.5	100	9.1	34.9	*	27.7	100	100	100	75.6

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	39.0	100	-58.2	-3.3	-57.3	0.0	-37.7	*	54.2	60.8	74.3	13.5
29	T.E.	-60.7	-60.7	-100	29.2	-66.2	-14.1	-100	-100	-15.3	-53.3	-28.1	-49.5
	Sup.	100	100	62.5	100	27.9	1.8	80.1	100	100	-75.1	100	60.4
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
30	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	35.2	100	100	100	**	100	100	**	100	92.3
	Adm.	100	100	45.3	100	100	100	**	100	76.5	**	100	89.8
31	T.E.	100	100	82.8	100	100	100	100	100	100	100	100	98.2
	Sup.	39.8	72.7	29.6	100	100	100	**	100	100	**	100	83.8
	Adm.	40.2	100	100	100	100	100	100	100	100	100	100	96.6
32	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	-100	-23.6	100	-100	-100	-100	-100	*	*	-100	*	-77.1 ±
33	T.E.	100	100	100	100	85.2	100	79.9	100	100	100	100	96.3
	Sup.	39.8	75.4	100	-1.8	100	100	100	100	100	100	100	88.5
	Adm.	100	100	100	100	100	100	85.1	*	100	**	100	97.8
34	T.E.	100	100	100	62.8	100	100	100*	100	100	100	100	97.5
	Sup.	100	100	84.8	100	100	100	*	100	100	**	100	96.9 ±
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
35	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	73.2	100	100	100	100	100	100	100	100	**	100	97.6
	Adm.	100	100	80.2	100	84.2	100	52.0	59.4	57.0	100	100	85.2
36	T.E.	100	59.6	100	100	73.2	100	*	100	100	100	100	94.2
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	100	100	100	100	100	100	82.9	97.9
37	T.E.	21.9	100	34.5	100	80.7	70.7	**	100	100	*	100	61.7
	Sup.	***											***
	Adm.	73.2	100	100	100	100	100	80.2	100	100	100	*	94.7
38	T.E.	18.8	100	-27.6	-33.3	13.6	15.9	12.8	37.2	64.6	-78.5	100	9.4
	Sup.	100	100	100	100	100	100	100	100	100	**	100	100
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
39	T.E.	100	100	100	100	86.8	100	100	100	100	100	100	98.4
	Sup.	100	100	100	100	100	100	100	100	100	**	100	100
	Adm.	100	100	100	100	100	100	100	100	100	100	83.6	97.9
40	T.E.	100	100	100	38.9	100	100	100	100	100	100	100	96.4
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	100	100	100	85.1	100	100	100	100	97.9
41	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	100	100	100	100	100	**	100	100
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
42	T.E.	-56.0	37.5	-56.4	100	-70.8	-100	-100	-100	-72.3	**	-100	-95.4
	Sup.	100	100	100	100	70.0	100	*	100	100	**	100	95.6
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
43	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	72.8	100	76.2	100	100	100	100	100	100	95.8

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	77.5	100	100	100	100	**	100	100	100	100	98.2
44	T.E.	100	100	100	100	100	100	80.5	100	100	100	100	97.9
	Sup.	14.5	47.4	39.9	100	66.2	100	**	100	100	100	100	71.5
	Adm.	100	100	100	100	100	100	**	100	100	**	100	100
45	T.E.	17.7	4.3	-59.4	69.0	-19.8	50.9	49.4	13.2	56.0	56.3	-18.9	16.3
	Sup.	100	100	100	100	100	100	*	100	100	**	100	100
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
46	T.E.	100	100	100	100	55.2	71.3	78.0	100	100	-18.3	100	71.6
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	100	100	@						100 †
47	T.E.	100	80.4	100	100	100	100	100	100	100	100	100	98.2
	Sup.	100	100	71.2	100	38.9	100	*	100	27.7	100	100	85.2
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
48	T.E.	100	100	100	100	100	100	85.0	100	100	100	100	98.3
	Sup.	100	100	100	100	100	100	100	100	100	**	100	100
	Adm.	100	100	100	100	86.4	100	100	100	100	100	100	98.4
49	T.E.	20.8	100	100	100	100	100	100	-45.9	100	86.4	100	83.5
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	77.5	100	100	100	100	100	100	100	100	100	98.2
50	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	1.8	100	100	100	100	100	100	100	94.5

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	65.7	27.9	59.9	100	100	100	100	85.0
51	T.E.	100	100	100	100	100	100	100	100	100	100	100	100
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	39.8	39.9	-17.0	100	7.4	1.5	*	45.2	12.3	*	51.8	31.3
52	T.E.	25.4	100	-60.6	60.2	-82.8	-100	**	-47.6	-.8	**	50.8	-11.4
	Sup.	100	100	50.7	100	100	100	**	100	100	**	100	93.2
	Adm.	100	100	100	100	100	100	100	100	100	**	100	100
53	T.E.	100	100	100	100	81.0	100	70.0	100	100	**	100	95.2
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
54	T.E.	100	34.6	100	100	62.7	100	43.6	-5.2	13.4	**	100	76.4
	Sup.	63.6	100	100	100	73.6	100	**	100	100	**	100	94.4
	Adm.	~~0-0~~											~~0-0~~
55	T.E.	100	100	100	100	100	100	*	100	100	79.7	100	97.7
	Sup.	100	100	75.0	100	100	100	82.9	100	100	100	100	96.6
	Adm.	100	100	100	100	100	100	100	100	100	**	100	100
56	T.E.	100	100	100	100	100	100	77.6	100	100	**	100	97.8
	Sup.	100	77.3	100	100	100	100	100	100	100	**	100	98.0
	Adm.	100	55.3	100	100	40.3	0.4	43.7	100	100	77.8	43.2	65.4
57	T.E.	47.9	14.4	-57.5	100	-45.2	-70.7	*	-100	-64.9	*	-100	-36.8
	Sup.	34.6	100	-49.2	100	34.5	-100	-100	100	100	100	100	65.7 ±

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	13.0	16.9	30.6	3.5	34.9	-71.3	-11.0	-100	100	70.5	64.0	22.1
58	T.E.	100	71.5	100	100	100	100	82.8	100	100	100	100	96.1
	Sup.	-14.5	74.7	100	-100	100	100	100	100	100	100	100	81.1
	Adm.	53.2	100	79.1	56.7	45.7	100	100	100	100	100	100	87.6
59	T.E.	-42.8	62.3	-45.4	100	36.0	100	*	-3.6	44.3	32.4	-1.3	16.3 ‡
	Sup.	73.2	100	75.8	100	100	100	15.8	100	100	**	100	81.6
	Adm.	20.4	22.7	32.7	54.9	50.7	100	56.5	100	100	100	82.6	74.9
60	T.E.	-42.8	100	-27.3	100	61.8	100	*	100	100	100	100	73.4
	Sup.	100	100	34.3	100	100	100	**	-100	100	75.8	100	90.1
	Adm.	-42.8	100	45.3	100	100	100	-100**	100	76.5	**	100	68.4
61	T.E.	20.8	-100	-32.1	52.0	-52.5	-33.3	**	-38.7	18.1	63.9	100	9.0
	Sup.	100*	27.9	50.7	100	33.7	100	**	45.9	63.2	**	100	63.1 ‡
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
62	T.E.	100	77.5	100	100	79.9	73.6	78.7	100	100	100	100	91.3
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	100	100	100	100	100	100	89.3	84.1	96.7
63	T.E.	100	100	100	100	77.5	65.5	*	0.0	100	100	100	91.5
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	76.8	100	100	100	100	100	100	100	100	100	98.3
64	T.E.	100	100	100	100	67.0	100	100	100	100	100	100	96.8
	Sup.	100	100	100	100	100	100	100	100	100	*	100	100

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	-25.6	100	100	55.3	100	100	-2.5	*	100	100	100	86.9
65	T.E.	37.5	59.6	38.6	100	100	100	100	100	100	100	100	87.6
	Sup.	100	100	80.0	100	68.1	100	100	100	100	100	100	94.3
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
66	T.E.	70.7	100	100	100	82.8	62.0	100	100	100	*	100	91.6
	Sup.	100	100	78.6	100	64.8	100	76.0	100	100	100	100	91.1
	Adm.	100	55.2	100	100	100	100	100	100	100	100	100	97.9
67	T.E.	21.3	-64.0	9.7	-100	-49.4	.4	44.4	-100	-.8	55.2	44.8	5.0
	Sup.	100	48.6	50.2	100	100	100	100	45.9	73.2	82.9	100	82.7
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
68	T.E.	100	77.5	100	100	100	100	100	100	100	100	100	98.1
	Sup.	100	100	100	100	100	100	100	100	100	**	100	100
	Adm.	73.2	76.8	100	100	85.2	100	100	100	100	100**	100	93.4
69	T.E.	100	37.6	76.6	100	100	100	100	100	100	**	100	92.0
	Sup.	66.5	100	-8.9	100	8.9	34.5	33.3	45.9	100	**	100	53.9
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
70	T.E.	100	100	29.7	100	5.9	-20.6	18.9	27.8	35.8	-59.6	100	38.2
	Sup.	100	100	100	100	100	66.0	100	100	100	100	77.0	94.4
	Adm.	100	100	100	100	100	72.5	44.8	100	64.1	100	100	88.5
71	T.E.	100	100	30.3	100	-21.6	-2.0	100	1.2	51.8	83.4	48.1	54.2
	Sup.	***											***

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	62.8	100	100	100	100	100	100	100	97.8
72	T.E.	100	100	100	100	100	100	58.8	100	100	100	100	95.9
	Sup.	***											***
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
73	T.E.	65.5	100	100	100	100	100	82.4	100	100	83.8	100	93.8
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	100	100	100	100	100	100	*	100	100
74	T.E.	100	77.5	30.3	100	23.6	35.7	100	25.8	100	*	100	69.1
	Sup.	100	100	100	100	100	100	100	100	100	*	100	100
	Adm.	~~0-0~~											~~0-0~~
75	T.E.	75.4	100	36.9	100	81.4	74.8	100	100	23.4	-1.0	100	73.0
	Sup.	100	100	100	100	100	100	100	100	100	100	100	100
	Adm.	100	100	100	61.2	100	100	*	100	100	100	100	97.5
76	T.E.	100	77.5	78.3	100	100	100	*	100	100	11.8	100	84.8
	Sup.	74.7	100	100	100	73.2	100	100	100	100	100	100	95.3
	Adm.	100	100	76.1	100	100	100	*	100	100	100	100	97.7
77	T.E.	100	100	81.8	100	100	100	*	100	100	100	100	98.2
	Sup.	100	100	100	100	100	71.5	100	100	100	68.9	100	93.3
	Adm.	42.0	47.4	8.4	100	38.5	50.2	.4	100	74.0	85.7	70.3	54.9
78	T.E.	14.5	100	-22.7	100	-52.2	-74.8	**	-100	-79.4	70.1	24.2	-2.6
	Sup.	100	100	56.6	100	100	71.3	**	100	100	100	100	92.6

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	100	100	100	100	100	100	*	100	100	*	100	100
79	T.E.	100	77.5	58.2	100	100	100	**	47.6	100	**	100	89.8
	Sup.	100	100	50.7	100	100	100	**	100*	100	**	100	93.7
	Adm.	100	100	100	100	100	100	*	100	71.0	86.2	100	95.1
80	T.E.	100	100	81.8	100	100	100	**	100	100	100	100	98.2
	Sup.	100	100	100	100	100	100	*	100	100	*	100	100
	Adm.	47.9	100	61.0	100	100	71.1	61.7	100	100	100	100	83.6
81	T.E.	100	48.0	76.4	100	18.0	-16.0	100	-1.2	100	100	100	69.7
	Sup.	100	77.5	100	100	100	100	100	100	100	100	100	98.4
	Adm.	100	100	100	100	100	100	68.2	100	100	*	100	97.7
82	T.E.	75.4	100	11.5	100	18.7	-32.8	**	30.6	12.9	*	100	49.0
	Sup.	***											***
	Adm.	75.5	100	75.6	100	85.1	100	**	100	100	100	100	94.3
83	T.E.	66.5	64.0	34.5	100	72.0	70.7	**	0.0	65.0	*	100	72.6
	Sup.	100	100	56.6	100	100	100	**	100	100	100	100	95.8
	Adm.	/											/
84	T.E.	100	75.4	0.0	69.0	-52.2	-22.5	-38.9	-30.6	30.8	**	85.0	23.5
	Sup.	74.7	100	78.6	100	23.4	100	100	100	100	**	100	92.0
	Adm.	100	100	100	100	100	100	100	100	100	100	100	100
85	T.E.	100	100	100	100	100	100	100	100	100	3.9	100	93.9
	Sup.	73.2	100	56.7	100	100	100	78.6	100	100	100	100	91.0
	Adm.	100	100	100	100	100	100	100	100	100	**	100	100
86	T.E.	62.0	100	100	100	57.1	65.5	100	47.6	100	**	100	86.2
	Sup.	100	100	100	100	100	100	100	100	100	**	100	100

Teacher Code Number	Rated by:	A	B	C	D	E	F	G	H	I	J	K	Average Total Per Rater
	Adm.	-7.1	31.9	-10.9	100	46.8	100	64.3	100	81.6	100	100	67.1
87	T.E.	-39.8	-22.8	30.3	100	-4.4	67.0	100	100	100	100	100	56.4
	Sup.	1.3	-100	-78.8	-35.1	-84.3	-71.5	**	-100	-57.1	-100	*	-73.1 ±
	Adm.	100	41.5	26.6	-100	78.7	37.0	63.7	61.4	76.1	69.6	12.5	53.2
88	T.E.	69.8	-0.4	7.3	100	-84.3	33.6	24.8	-53.6	26.8	72.6	100	31.0
	Sup.	100	100	100	100	86.4	100	100	100	100	100	100	98.5

* No basis for decision
** No program (Does not teach)
± Scored on less than 201.7 points (50% of points on Rating Scale)
*** Rater did not know teacher well enough to rate
@ Did not complete remainder of Rating Form
-0- Rating Scale not returned
-0-0- Rating Scale returned but not completed
/ Scale returned but completed for another teacher

APPENDIX I

Procedure for Determining "Coverage of Farm Experience"

Guide for Making a Qualitative Evaluation of Farm Experience:

A. Excellent farm experiences. Has lived most of life on farm; has operated a farm for himself (at least one year); or has served as farm manager or has farmed on a partnership basis with someone else. Well qualified in nearly all skill areas. Nearly all skill areas double checked. (Except sheep, horses.)

B. Good farm experience. Quite a few skill areas double checked; nearly all single checked. May have farmed, but experienced no managerial ability. May possess general farming experience, but not to the excellent degree as in "A". Lacks experience perhaps in horses, beef or sheep areas. Experience good to excellent, but will limit individual in placement to those specialized areas in which he is experienced.

C. Quality of experiences fair. May possess average or below experiences in one major area as dairy, farm mechanics, swine, crops and soils. Most skill areas single checked. Student needs additional skills ability but it is reasonable to assume he will get these skills in his college training.

D. Quality of experiences mediocre to poor and major areas definitely weak. He has had limited experiences, and this experience may have been on small farms. Noted absence of experiences in major areas. This student not a good risk and should be guided into some other field. Will not be eligible for certification unless additional skills are acquired.

F. Not acceptable. Has had occasional employment on farm, but has little or nothing to offer by way of farm experiences. May have resided on a highly specialized farm (onion farm) where few if any good experiences could be acquired. Experiences so lacking as to be a definite handicap. Absence of skill checks warrant non-approval.

Guide for Making a Quantitative Evaluation of Farm Experiences:

1. Farm experience after age of 15, and before graduation from high school is determined by taking the number of months and dividing by two. (If the person were over 18 at graduation, this might result in more than 18 months in some cases.

   a. If summers only are spent on farm during high school years, count summer months at full value, but person must get at least nine months more experience at times other than summer.

   b. If a person moved off the farm before graduating, usage at leaving farm.

2. For persons who have lived and worked on a farm until high-school graduation (i.e., who have equivalent of one and one-half years experience since age of 15, six months more are required. This may be in summer if quality is acceptable).

3. The following jobs related to farming may be counted as farm experience, provided the person also has one year of year-round farm experience:

Type of Work	Value	Maximum Credit
D.H.I.A. tester	Full	1 year
4-H Club Agent	Full	3 months
Greenhouse Worker	1/2	3 months
S.C.S. Aids	Full	3 months
Farm Account Checker, F. Mgt. Dept.	Full	3 months
Fertilizer, feed, etc. Salesman	1/2	3 months
Farm Elevator Worker	1/2	3 months
Fruit Inspection	1/2	3 months
Farm Custom Worker	1/2	3 months
Work on College Farm		
a. While enrolled as student	1/2	3 months
b. While not enrolled	Full	

APPENDIX J

Teacher No.____

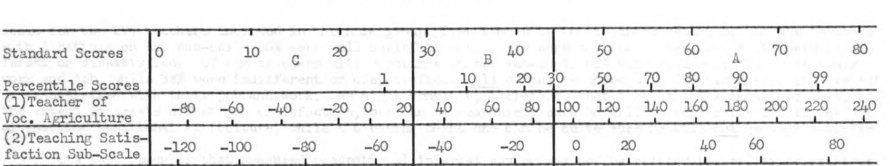
Computation Table for Spearman's Rank Correlation Coefficient for Teacher Performance Scores by Teacher-Educators (T.E.), School Administrators (Admin.) and State Supervisors (Sup.).

Sub-Section	Rank by T.E.	Rank by Admin.	D	D^2	Rank by T.E.	Rank by Sup.	D	D^2	Rank by Admin.	Rank by Sup.	D	D^2	
A													
B													
C													
D													
E													
F													
G													
H													
I													
J													
K													
Total													
r_r													
t													

**Significant at the 5% level; *Not significant at the 5% level of significance.

APPENDIX K

TEACHER OF VOCATIONAL AGRICULTURE REPORT FORM FOR
THE STRONG VOCATIONAL INTEREST BLANK



Your scores on (1) the Teacher of Vocational Agriculture scale, (2) the Teaching Satisfaction sub-scale, and (3) the Farmer scale are marked above. These raw scores can be converted to letter, standard or percentile scores by using the scales on the top line. These standard and percentile scores are based upon a norm group of 277 experienced, successful North Central States teachers of Vocational Agriculture.

On Scale 1, the Teacher of Vocational Agriculture scale, the score indicates the degree one's interests compare with those of experienced, successful teachers of Vocational Agriculture. A rating of A (standard score of 45 and over) means that one has the interests of this group, while a rating of C (standard scores of less than 30) means one does not have such interests. A rating of B means that one probably has the interests of this group, but we cannot be as sure as in the case of the A rating. Scale 3, the Farmer scale, compares one's interests to those of experienced, successful farmers who are graduates of an agricultural college, and scores are interpreted in the same manner as for the Teacher of Vocational Agriculture scale.

Scale 2, the Teaching Satisfaction scale, is a sub-scale of Scale 1 and should be used only when reasonably sure an individual has the interests of teachers of Vocational Agriculture (indicated by an A or B rating on Scale 1). Scale 2 is based upon the contrasting interests of teachers with high and low job satisfaction. A comparison of the self ratings of job satisfaction and scores on the teaching satisfaction sub-scale for the 277 teachers included in the norm group gives some clue to its interpretation. Of the teachers with A ratings on the sub-scale 86% were well satisfied with their work and their jobs, while 14% were indifferent or dissatisfied. Of the teachers with B ratings on the sub-scale 62% were well satisfied with their work and job, while 38% were indifferent or dissatisfied. All of the teachers with C ratings were indifferent or dissatisfied with their job and work. We might conclude, therefore, that a rating of A indicates that, to the extent interests affect job satisfaction, one can be reasonably sure he will be well satisfied in the job of teaching Vocational Agriculture, while a C rating means one can be quite sure he will not be well satisfied.

One must remember that measured occupational interest may or may not be related to ability or aptitude. Interests point the way you want to go; abilities determine how well you can progress.

APPENDIX L

Descriptive Statements Pertaining to Student's Mechanical Index

Student's name_____Term year_____Instructor_____

Directions: Below are a number of descriptive statements which characterize the work of students in shop classes. Some are very desirable characteristics and others are very undesirable. Check only those statements which describe the person being rated. It may be that no statements will be checked in some of the sections. You do not need to compute a score for the student.

Capacity or ability (Motor skills):

____Did the most difficult job easily
____Made the easiest of jobs difficult
____Awkward
____Made unnecessary movements in working
____Worked very efficiently on most types of work
____Did careful precise work as easily as coarser work

Mechanical insight:

____Anticipated needs for tools and materials and secured them at one time
____Organized work poorly
____Solved mechanical problems easily
____Had difficulty in understanding mechanical processes
____Could describe mechanical things clearly
____Did work the hard way
____Applied what he learned to new situations
____Did not apply what had been taught in new situations

Adaption (natural or accuired):

____Worked with others without serious difficulty
____Could work alone or in a group equally well
____Wasn't afraid to get dirty
____Did not wear clothes needed in shop work
____Couldn't work effectively if under pressure
____Maintained a high quality of work even though rushed
____Often displayed a bad temper when work went against him
____Disliked to be interrupted for a demonstration

Safety consciousness:

____Observed safety practices in the use of power tools
____Did not use the safety guards on machines
____Usually worked carefully
____Seemed to anticipate possible dangers in work
____Tended strictly to business in the shop

Quickness of understanding:
____Blundered ahead without seeking help when needed
____Asked for advice or help too frequently
____Lacked confidence to go ahead and do a job on his own
____Needed to be corrected on procedure often
____Seldom erred on procedures which were taught
____Couldn't follow instruction without help from other students

Readiness (background):
____Knew names for most tools and parts of machines
____Used correct terms in describing mechanical processes
____Did not use common tools correctly
____Lacked knowledge of fundamental processes

Interest:
____Bored in shop classes
____Interested in shop work
____Disliked shop work
____Enjoyed his work in the shop
____Hated to quit work
____Could hardly wait until the end of the period
____Made special effort to acquire shop skills

Safety consciousness - cont'd:
____Often visited when working on power tools
____Used the right tool for the job
____Careless with tools
____Clothing often was in the way around machines

Standards of work:
____Did very exact work
____Often made errors in his work
____Wasted materials
____Spent time to figure out ways to save materials
____Did not have good standards for quality work
____Had good understanding of what represented quality work
____Did work just good enough to get by
____Did not have any pride in his work
____Liked to keep shop clean and orderly