

EFFECTS OF TRADE EXPERIENCE, TEACHING EXPERIENCE, AND
PROFESSIONAL EDUCATION ON THE CLASSROOM TEACHING
PERFORMANCE OF SECONDARY SCHOOL VOCATIONAL
INDUSTRIAL EDUCATION INSTRUCTORS

by

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Chapter 1

INTRODUCTION

Educators have long been concerned with the recruitment, selection and utilization of competent and dedicated instructional personnel. Considerable effort has been expended to determine those traits and abilities which contribute to successful teaching. Researchers have dealt not only with the sociological and psychological factors, but also with the influence of professional education on teacher competence.

Vocational industrial education is unique insofar as a majority of instructors have not gained formal collegiate preparation for teaching. Consequently, other influences, such as trade experience and teaching experience, as well as credits earned in professional education courses, are believed to have a direct bearing on their teaching performance. This study attempted to establish the effect of these variables upon the classroom teaching performance of vocational industrial education instructors.

JUSTIFICATION FOR THE STUDY

The enactment of three major federal laws, the Vocational Education Act of 1963, the Amendments of 1968, and Title II of the Amendments of 1972 have given greater impetus to the expansion of vocational education programs than any other legislation since the landmark Smith-Hughes Act of 1917. This trend is evidenced by the rapid growth which has occurred in all areas encompassing the vast scope of vocational

education. Because of the rapidly expanding national economy and the subsequent increase in demand for skilled labor, this expansion has greatly affected public education, causing vocational education to move into the forefront in terms of educational growth.

The rate of expansion of Virginia's vocational industrial education programs is one indication of the challenge placed upon public education to prepare students for work. This growth rate is evidenced in Table 1.

Table 1
Vocational Industrial Instructors and Student
Enrollments in Virginia — 1964-1973*

School Year	Instructors	Student Enrollment
1964-65	375	10,795
1965-66	406	11,612
1966-67	410	11,645
1967-68	622	14,061
1968-69	666	14,864
1969-70	853	20,293
1970-71	1,019	27,452
1971-72	1,175	28,475
1972-73	1,264	34,460

*(State Department of Education, 1964-1973:1-24)

The figures in Table 1 represent a growth rate of over 300 percent in the number of students and instructors during the period from 1964-65 to 1972-73.

A further indication of the rapid national growth in vocational education can be seen in Table 2.

Table 2
Numbers of Federally Reimbursed Vocational
Industrial Education Instructors*

Fiscal Year 1968	Fiscal Year 1971	Increase in 3 Years
47,742	59,065	11,323

*(National Advisory Council on Education Professions Development, 1973:20)

This tremendous expansion has fostered a need for the increased recruitment and training of instructors who are capable of imparting occupational skills and technical knowledge to youth and adults seeking employment in an industrial society. These teachers need to have certain unique professional qualities not usually required of the academic instructor. Gleazer indicated that vocational industrial instructors must command the respect, not only of their students and teacher peers, but also of engineers, craftsmen, businessmen, and others whose preparation and experience often far exceed their own. He further indicated that these instructors must be able to function effectively, not only in the classroom, but also in a laboratory setting, requiring unique qualities and skills (1968:1-151). Vocational industrial education instructors must be able to communicate and teach their students how to communicate in the technical language required in our contemporary

society. It is necessary that these instructors have the ability to prepare students for the experiences which they will confront in the real world of work — abilities not typically required of academic instructors.

The expansion of programs, coupled with the need for teachers who possess the aforementioned specialized skills, has made it mandatory to select the majority of vocational industrial education instructors from sources other than degree granting institutions. From a review of data gathered on vocational industrial education instructors in Virginia (State Department of Education, 1974:1-575), most are recruited either directly from the ranks of the military or from industry. It was also found that less than five percent of the vocational industrial education instructors enter teaching with a college degree in addition to the recommended minimum amount of actual trade experience.

Although these teachers are highly skilled in a trade area, the allegation has been made that they lack the philosophical and pedagogical bases considered essential for satisfactory teaching performance upon initial employment. The National Advisory Council on Education Professions Development (1973:25) concluded that "An unnecessarily low level of occupational and pedagogical competence of instructors is almost certain, because of the limited labor area from which they are recruited." This report emphasized the dependence upon labor and industry for the supply of instructors who possess adequate trade skills. It further stressed that since a vast majority are obtained from this source, the supply is "limited" (1973:21-25). Because of the unique background required, however, instructors are usually recruited

primarily on the basis of their past trade experience. It is expected that their trade competencies can serve as a basis for teaching subject matter skills, and that classroom teaching performance would improve (1) if they are required to complete a number of professional education courses and (2) as a result of additional teaching experience. Despite this reasoning, the extent which trade experience, professional teaching experience, and professional education course credits significantly influence classroom teaching performance has not been ascertained.

No other segment of public education offers this unique situation whereby these three factors can be studied. Of this Bjorkquist, Brandon, Finch, Impellitteri, and Wiersteiner (1968a:14) stated:

In at least one aspect, trade and industrial education is in an enviable position to attack certain research problems. One issue often raised is whether a person would do as good a job of teaching if he were not to have had the professional education courses, general education courses, and other required courses. In all other teacher education fields it would be relatively impossible to attack this type of problem.

Bjorkquist, et al. concluded that the majority of recent studies have been concerned with either the teacher education "process" or the teacher education "product." In only a very few cases have attempts been made to connect the linkages between a teacher's development and his teaching performance (1968b:1-16).

It is important, for several reasons, that consideration be given to the variables of trade experience, teaching experience, and professional education in terms of the effect which each has on classroom teaching performance. Of major importance is the justification of expenditures of capital funds at the colleges and universities now offering vocational industrial teacher education programs. Increased

emphasis must be given to maximizing the quality of training received by instructors if they in turn are to provide quality vocational programs for youth and adults. Barlow implied that improvements in vocational industrial education must start with the teacher and, as a result, with teacher education (1967:491).

Secondly, if future demands for vocational offerings are to be met, a significant increase must be achieved in the number of competent teachers recruited and trained, particularly in vocational industrial education. Venn (1964:174-175) concluded that "Teacher shortages in most fields of vocational and technical education create one of the greatest handicaps to program expansion." The increased emphasis on vocational industrial education programs at the state level is typified in the Virginia Vocational Education Advisory Council's Fourth Annual Evaluation Report (1973:10-11):

The State Department of Education should work with the various institutions of higher education in the state which offer programs for the training of professional personnel in vocational education to increase the supply of teachers, supervisors, administrators, counselors, and researchers. The present supply of qualified personnel is inadequate to meet demands. The shortage is especially great in the fields of trade and industrial education, technology and industrial arts. A substantial increase in the supply of competent personnel is mandatory if future goals for the state, as required by the Standards of Quality, are to be achieved.

This report also emphasized the need for Virginia secondary schools to increase enrollments in marketable skill programs from approximately 30 percent to 60 percent of the total school population. Thompson indicated similar increased emphasis on vocational education program expansion in other states when he made comparisons of vocational course enrollments in 1962-63 and projections for 1975-76 from

a national standpoint (1973:133-149).

School administrators must integrate vocational and non-vocational teachers into a cohesive, workable body of educators dedicated to the development of each student into a useful, contributing member of society. Faced with this responsibility, the administrator is highly interested in the selection of qualified instructors who will be effective in the classroom. Vocational industrial education personnel are often viewed as being inferior in this respect because most do not have the college degree. This study attempts to provide information to those who have responsibility for the administration and supervision of vocational industrial education programs and to personnel at institutions providing vocational industrial teacher certification courses. It should prove valuable to school division superintendents and personnel officers who are required to make decisions regarding the employment of vocational industrial education instructors, and to teacher educators who are attempting to train the most competent instructors.

In hiring, some consideration must be given to the vocational industrial education applicant's work experience and training. Usually instructors are given credit for this experience on the salary scale, which serves as an added inducement to leave industrial employment. Evidence in support of this policy should provide added impetus for its continuation by local school divisions.

It is important that educators utilize every available tool for the evaluation of performance levels and the variables affecting teaching performance as a means of providing increased quality in vocational

industrial education. Quality programs which will serve to equip high school students for employment, upon termination of their formal education, must continue to be a major goal of the educational community.

STATEMENT OF THE PROBLEM

The purpose of this study was to determine the effects of years of trade experience, years of teaching experience, and professional education on the classroom teaching performance of public secondary vocational industrial education instructors. Classroom teaching performance was evaluated by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

The study was designed to answer the following specific problems:

1. What effect does trade experience have upon the classroom teaching performance of vocational industrial education instructors?
2. What effect does teaching experience have upon the classroom teaching performance of vocational industrial education instructors?
3. What effect do levels of professional education have upon the classroom teaching performance of vocational industrial education instructors? A related question was concerned with the relationship of vocational industrial education courses and professional education courses taken by instructors.
4. What are the interaction effects of the variables of trade experience, teaching experience, and professional education?
5. What differences are there in the ratings given by the various groups of raters, specifically, school administrators, supervisors, teacher-peers, teachers on a self-rating, and students? An

additional problem was the determination of those factors of teaching performance emphasized by each of the five groups of raters.

HYPOTHESES OF THE STUDY

The hypotheses tested were:

Hypothesis I. Those instructors having low trade experience will receive lower classroom teaching performance ratings than those instructors having high trade experience.

Hypothesis II. Those instructors having low teaching experience will receive lower classroom teaching performance ratings than those instructors having high teaching experience.

Hypothesis III. Those instructors having low levels of professional education will receive lower classroom teaching performance ratings than those instructors having high levels of professional education.

Hypothesis IV. There will be significant differences in the mean performance ratings of instructors as given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

ASSUMPTIONS OF THE STUDY

This study did not attempt to relate the performance level of each instructor within the classroom to any measure of trade competency. Valid measures of trade competency are not utilized by those who recruit and hire vocational education instructors. It must be assumed, therefore, that all instructors included in the sample possessed adequate

trade skill competencies, although this variable could conceivably be an inherent influencing factor upon classroom teaching performance.

The study did not attempt to relate achievement levels obtained in professional education courses taken by each instructor to any measure of classroom teaching performance. Again, this variable could have an influence upon classroom teaching performance, however such achievement was impossible to assess objectively. The varied content of the courses taken, the multitude of colleges and universities represented, the difficulty encountered in obtaining the grades of every teacher and the subsequent lack of uniformity in interpretation of the grade assigned would make this an enormous undertaking. It was assumed that satisfactory completion of each course denoted the ability to apply and utilize course content.

LIMITATIONS OF THE STUDY

This study was confined to those randomly selected vocational industrial education instructors employed on a full-time basis in the public secondary schools and vocational centers of Virginia.

Groups of instructors eliminated from this study included those engaged in any phase of health occupations instruction, teachers of disadvantaged or handicapped students in vocational industrial education, and Industrial Cooperative Training coordinators. Each of these areas includes special curricula and unique professional qualifications unlike those experienced by regular vocational industrial education instructors. Accordingly, it was decided that a more homogeneous sample could be obtained if these groups were omitted from the sample.

Because of the variety of duties assigned to most teachers in the secondary school setting, it would be almost impossible to relate each to adequate trade experience, teaching experience, or teacher preparation. Consequently, this study was concerned only with the analysis and measurement of classroom teaching performance.

No attempt was made to describe the quality of trade experience represented by each instructor. The trade experiences which are possessed by the subjects were spread over many years and represented varied occupational situations, each as different as the number of instructors. It was impossible to ascertain exactly how much actual work an instructor had experienced in a trade. According to Swartz (1974), this is a common problem encountered by State Department of Education personnel who must assess what the prospective teacher "claims" is bonafide trade experience. Many experiences may be repetitious in nature or irrelevant to the occupational area in question.

No attempt was made to relate other types of teaching experience except those recognized as bonafide years of instruction in public and private schools, colleges, and universities. It would be difficult to analyze every form of "teaching," such as that performed in the military or in industry, for its value and influence on public school instruction. It is recognized, however, that any form of interaction between two or more individuals where new skills are transmitted, or knowledge passed from one person to another, must certainly have some effect on a person's teaching "experience."

The measurement and definition of teaching performance has been a controversial matter in the field of education ever since the inception

of the first formal schools. The measurement of performance is, in essence, an observer's rating of the instructor's actions in the classroom setting. As such, this study was limited to the ability of such instruments as have been developed to measure this complex educational behavior.

DEFINITION OF TERMS

The following definitions pertain to terminology used in this study:

Classroom: The physical facility in which lectures, lecture-demonstrations, laboratory activities, and other knowledge and skill development activities occur for the vocational industrial education student.

Classroom teaching performance: Those activities relating to or occurring within the classroom over which the vocational industrial education instructor has control, direction, supervision, and responsibility. Operationally defined as the total composite score as measured by the performance rating instruments designed for this study.

Classroom teaching performance ratings: Operationally defined as the scores given by the raters to the ratees on the supervisor, administrator, teacher-peer, self-rating, and student performance rating instruments (Appendix A).

Professional education or professional education courses: Operationally defined as the total semester hours of credit earned by the instructor in undergraduate or graduate college level courses which deal with the study of the history, philosophy, psychology, content, and

pedagogy of education. This includes all specialized areas of education such as vocational technical or business education and the directly related areas of supervision and administration, curriculum and instruction, etc.

Public secondary school: Any school supported entirely by tax funds enrolling students in grades 9-12.

School administrators: Principals or assistant principals of comprehensive secondary schools or vocational-technical centers, or directors of vocational technical centers where vocational industrial education programs are offered.

Semester credit hour: The certification of a teacher's successful completion of a unit or course of study, based upon one credit hour for each clock hour of classroom instruction received per week during an eighteen week session.

Students: Members of a public secondary school who are enrolled in a vocational industrial education subject.

Supervisor: The professional person responsible for the promotion, development, maintenance, and improvement of instruction in vocational industrial education. The specific title may vary from locality to locality.

Teacher-peers: Vocational industrial education instructors who are employed in the same school.

Teachers on a self-rating: The self-evaluations of classroom teaching performance completed by vocational industrial education instructors.

Vocational industrial education courses: Graduate or undergraduate

college level courses designed specifically to upgrade the pedagogical skills of vocational industrial education instructors, or those vocational courses which relate directly to the subject area. Operationally defined as those courses having a VIED, VTE, or VE prefix.

Vocational industrial education instructor: A teacher employed by a school division for the purpose of imparting trade skills and knowledge to youths in a public school setting.

Years of teaching experience: Periods of employment in the teaching profession at a public or private secondary school, college, or university. Operationally defined, a year of teaching experience is the successful completion of a 9, 10, 11, or 12 month contract period for instructional services.

Years of trade experience: Operationally defined as calendar years of employment beyond the normal learning period (apprenticeship) for a given trade in either a commercial or industrial establishment, or government service.

Chapter 2

THEORETICAL FRAMEWORK AND REVIEW OF RELATED RESEARCH

INTRODUCTION

This study attempted to determine the effects of selected variables upon the classroom teaching performance of vocational industrial education instructors. Rating forms were used to evaluate teaching effectiveness. Although evaluation is not considered to be research in its purest form, it nevertheless utilizes much of the methodology of applied research. Tuckman (1972:15) stated "While evaluation does not represent a discrete step in the research process, today's educational researcher must have a clear conceptualization and grasp of it."

Thorndike and Hagen (1961:27) described evaluation thusly:

The term 'evaluation' as we use it is closely related to measurement. It is in some respects more inclusive, including informal and intuitive judgments . . . and . . . the aspect of valuing—saying what is desirable and good. Good measurement techniques provide the solid foundation for sound evaluation.

Stufflebeam, Foley, Gephart, Guba, Hammond, Merriman, and Provus (1971:40) stated that evaluation is ". . . the process of delineating, obtaining, and providing useful information for judging decision alternatives." It must be noted that both definitions are concerned with (1) the techniques or process involved, (2) the collection of data and information, and (3) reaching conclusions and providing useful information.

Comparing these definitions to the definition of basic research, as provided by Tuckman (1972:1), we find that evaluation is very similar:

Basic research is concerned with the relationship between two or more variables. It is carried out by identifying a problem, examining selected relevant variables, constructing a hypothesis where possible, creating a research design to investigate the problem, collecting and analyzing appropriate data, and then drawing conclusions about the relationships of the variables.

The design of this study also lends itself to a comparison with research. It closely resembles that described by Campbell and Stanley as a co-relational study (1963:171-296). Tuckman (1972:124) defines a co-relational study as involving ". . . the collection of two or more sets of data from a group of subjects with the attempt to determine the subsequent relationship between those sets of data." A co-relational study is not strictly an experimental form of research but is further described by Tuckman (1972:123-124) as:

. . . an experiment in which the researcher examines the effects of a naturalistically-occurring treatment after that treatment has occurred rather than creating the treatment himself. The experimenter attempts to relate this after-the-fact treatment to an outcome or dependent measure. . . . it is different in that the treatment is included by selection rather than manipulation.

A theoretical framework was constructed. Therefore, a basic tenet of this study was that evaluation is conducted as a function of research rather than as research in the pure state. This framework deals with the use of various groups in the evaluative process as a means of producing data on classroom teaching performance.

THEORETICAL FRAMEWORK

The evaluation of teaching performance has been centered, to a

large extent, upon the observations of administrators and supervisors. Although the literature indicates that such observations have been the primary basis for rating the degree of effectiveness by teachers, during the last decade increased emphasis has been placed upon other techniques of teacher evaluation.

Egnatoff reported four trends which have emerged in the development of teacher evaluation over the past fifty years. The most important has been the trend away from the assessment of teacher characteristics toward an assessment of the teaching-learning situation. In relation to this trend, he stressed the need for more research on who should do the appraising. He identified the various groups to whom the responsibility should be given as (1) superordinates (principal, department chairman, supervisor), (2) subordinates (students), (3) peers (teachers), (4) external evaluators, and (5) the teacher himself. He supported the need for involvement of all groups in the evaluation process (1971:19-21).

Teacher Evaluation by Superiors

The fact that supervisors, principals, curriculum specialists, and superintendents are usually given the responsibility for hiring and firing of teacher personnel has unquestionably placed the major evaluative duties with this group. Lacking any other basis for a review of the performance of their teachers, they have resorted to an assessment of teaching ability based upon casual observations. Stake discussed the differences between informal evaluation (casual observation) and formal evaluation (use of checklists, structured visits, controlled comparisons, and standardized testing) and points out the need for more

formal evaluation. He further indicated that most evaluation is of an informal nature (1967:523-540).

One of the most frequent criticisms of supervisors' and administrators' evaluations is that they are often based upon the qualities of the teacher rather than upon the learning outcomes. Newton pointed out that a supervisor's evaluation could easily contribute to a teacher's understanding and competence if (1) confusion did not result because of supervisory judgment based upon process rather than outcome and (2) if tension were not resultant from fear that the evaluation was for fault finding. He also stressed the conflict between supervisor and teacher perceptions relative to ideal teaching behavior and further noted that evaluation must be made on the basis of the effect which teaching has upon learning rather than the methods used in the process (1972:52-58).

The argument over whether or not administrators and supervisors can effectively rate teaching performance is widespread. Barr, after thirty years of research and study of over a thousand performance rating instruments, pointed out that instruments are unreliable when used by different observers, with results in most cases colored by observer opinion and personal bias. He noted that this problem exists because educators have different concepts of teaching effectiveness, varying amounts of training in the handling of data, and different levels of professional sophistication in the use of evaluative techniques. Consequently, they evaluate teachers differently (1948:203-283).

Wilson's research furnished evidence that administrators may have unique ideas about which kind of teacher is most effective. In his study, two groups of high school teachers were involved—one chosen

randomly and the other made up of teachers rated by seniors with high scholastic records as being most effective. Teachers were compared on eight different indices, one of which was ratings by high school principals. It was in the aforementioned category that the least difference between the two groups of teachers was found. The findings suggest that principals showed little agreement with the high achieving students on effectiveness of teachers concerned (1964:1-74).

Hedlund (1953:231-232) and Johnson and Radebaugh (1969:152-156) on the other hand, found that administrators could effectively evaluate and identify superior teachers. Howsam (1960:34) noted that "There is general agreement that consistency of ratings by supervisors and administrators is fairly high." He further stated, "Having a well-defined rating instrument with clear descriptions of the characteristics and behaviors to be observed also increases agreement." One of the most favorable comments concerning this type of teacher rating was made by Ryans (1949:696), who stated that:

It is common to assume that the teacher's immediate supervisor will have a background of acquaintance with the teacher that may enable relatively valid and reliable ratings. Furthermore, supervisor's ratings are presumably made from the standpoint of one who has had an opportunity to compare the teaching performance of different individuals and who may, therefore, be a qualified judge of relative ability.

That widely divergent views are held concerning the attitudes and traits which are representative of the excellent or outstanding teacher was conceded in 1961 by the American Association of School Administrators (A.A.S.A.), the Department of Classroom Teachers of the National Education Association, and the National School Boards Association (1961:37) on the basis of a comprehensive review of studies dealing

with effectiveness of teachers. The report stated, "The notion of the 'good teacher' so basic to the study of teacher effectiveness turns out to be almost as vague and diffuse as the range of human experience relative to teaching." However, the report (1961:32) also stated:

Overall administrative opinion constituted the most widely used single measure of teacher competence. Available studies showed in general that teachers could be reliably rated by administrators and supervisory personnel (usually with correlations of .70 or above).

Teacher Evaluation by Peers

Although teacher evaluation by peers seems to be sound in theory, there are several criticisms which prevent its more widespread use.

Howsam (1960:32) stated:

Usually teachers have access to only limited evidence on the work of other teachers. Thus, ratings tend to be based on marginal evidence. Before such ratings could be really successful, teachers would have to have an opportunity for interclass visitation. An added problem is the probable reluctance of teachers to rate each other except for research purposes.

Howsam alludes to two problems in teacher-peer evaluation of classroom teaching performance: (1) evaluations should be conducted by those who are familiar with the teacher being appraised and by those who have some knowledge of the subject matter, and (2) teachers are reluctant to evaluate other teachers. Often, in terms of the latter, the opportunities for an accurate appraisal of another teacher's performance decreases with the size of the school faculty.

Knight conducted research on the qualities relating to success in teaching. He called attention to the dangers in the use of rating scales and to the "halo" effect on judgments made by close associates

of the persons being evaluated. He concluded that the dominant factor to be used in judging teaching success seemed to be interest in one's work (1922:1-67).

Morsh and Wilder made a study of the responses of United States Air Force instructors and the patterns which emerged when they were asked to complete competency evaluations on each other. They concluded that instructors tended to evaluate their colleagues upon the amount of subject matter which they possessed rather than upon their actual teaching effectiveness (1954:1-151).

Ferguson and Honde made a study of the changes in the ability of teacher-peers and students to evaluate teachers when given instruction in personality judgment and the effects on improvement of teacher personality by the use of student ratings. Students and teacher-peers were asked to rate one instructor on twelve traits such as courtesy, clothing, English usage, personal dress, and meeting people. Among other observations, they concluded that (1) ratings of fellow teachers tend to be higher than student ratings and (2) the judgment of personality made by a single class is a sufficiently accurate picture of the teacher (1942:439-443). Inferences on the merit of student ratings can also be obtained from this study.

Owens conducted a study of the perceptions of teachers, college supervisors, and public school administrators relative to teacher competence as measured by the interview scales of the Instrument for the Observation of Teaching. She concluded that administrators, teachers, and college supervisors perceive most areas of teacher competence similarly (1971:77-82).

Teacher Evaluation by Self-Rating

Very little research relating to the use of teacher self-ratings has been done. Studies which have been conducted resulted in inconclusive results about their value. Turner, in a study of the effectiveness of thirty-one pre-tenure teachers, found that teachers generally rate themselves lower than either principals or students on certain performance traits such as class management, professional attitudes and growth, and personal qualities (1971:1-98).

Bolton (1973:140-141) favored self-evaluation with the contention that:

The teacher's analysis helps to reduce the natural conflict that is often encountered when an outsider makes judgments about teacher behavior. Since the supervisor is placed in the role of a resource person, assisting to develop the teacher's coding and analysis skills, he is no longer perceived as a threat to the teacher. The common goal of the supervisor or principal and the teacher in self-evaluation is to provide a teacher the opportunity to improve his teaching skills by observing his own behavior in a threat-free atmosphere.

The Use of Student Ratings to Measure Teaching Performance

More recently, educators have been encouraged to make use of student ratings of teaching performance. Riley, Ryan, and Lifshitz (1950:vi) commented:

The students' concepts of ideal and actual instruction, too long generally disregarded, should be faced and dealt with daily. While isolation from them may offer a seemingly psychological security, maximum effectiveness can be achieved only through their critical recognition.

Students' concepts of teaching effectiveness have remained, until recently, a matter of personal judgment upon their teachers, shared largely by and for themselves. Educators, however are beginning

to value these analyses as having worthwhile merit in the effort to properly seek out all measures of teaching performance. As a result, students are being given more opportunities to share in this task.

Opposition to the use of student evaluations has largely been centered upon three arguments. According to Smyser:

1. The student is not competent to pass judgment upon his superiors.
2. Educators are inviting attacks from the spiteful, the vindictive, and the disappointed.
3. Students should not be encouraged to think that they have the right to judge their teachers (1948:459).

Cole (1940:569) reinforced this negative viewpoint of student evaluations.

. . . the students are too young to have any worthwhile opinion, they do not know good teaching when they see it, they are not able to analyze teaching into its elements, they make out their ratings carelessly, their opinions depend upon their marks in the course, they use the scale as a measure of expressing their prejudices or of 'getting even' with the instructor, and they develop an undesirable attitude toward their teachers.

The argument against student involvement in performance evaluation has been expressed more recently. Brickman (1966:143) is rather blunt in his reaction to student evaluations.

The evaluative procedure should not be transferred to the student body, however great the clamor on the campus. It takes a deep sense of scholarly sophistication to judge the knowledge of an instructor. Students, even in graduate and professional schools, generally lack the attribute of mature scholarship which would enable them to appraise, with any degree of validity as a rule, the scope and depth of knowledge possessed by their college professors.

While many other authorities have expressed themselves in

opposition to the use of student ratings, many others appear equally strong in support of their use.

Guthrie (1927:175) supported the involvement of students in teacher evaluation and stated, "Students have an opportunity for observing the quality of teaching that no fellow teacher, head of department, or school authority ever enjoys. They alone have a direct classroom acquaintance with their teachers."

Since 1927 Remmers has conducted considerable research on student ratings of instructors. In Gage's Handbook of Research on Teaching, Remmers presented these major findings:

1. Reliability of ratings of teachers by students is a function of the number of raters. Twenty-five or more student ratings, when averaged together are equally as reliable as the better educational and mental tests at present.
2. The grades received by student raters have little if any effect upon their evaluation of the instructor who assigned the grade.
3. Alumni ten years after graduation agree substantially (r's ranging from .40 to .68) with on-campus students in their average ratings of the same instructor.
4. When correlated for reliability of the ratings, "halo effect" has little or no influence upon student ratings of instructors.
5. The difficulty of the course has little or no effect upon student ratings of an instructor.
6. The sex of the student has little or no effect upon student ratings.
7. The cost of obtaining student ratings is low in comparison

to the cost of administering a typical standardized test.

8. The popularity in extra class activities is probably not related to student ratings of the teacher.

9. Teachers who have less than five years experience tend to be rated lower than those having more than five years experience.

10. The sex of the teacher generally has no effect upon the ratings received.

11. Students are more in favor of the use of student ratings than are instructors. (1963:329-373)

McKeachie, Lin, and Mann studied the use of student ratings as measures of effective teaching by utilizing factor analysis on all items which had previously been used for ratings of instructors and instruction. Six dimensions of teaching effectiveness were identified. These were later developed as hypotheses and tested with the use of correlative techniques to determine their importance as appropriate measures of teaching performance. In each case, student performance on a criterion measure was used as the method of evaluation. These studies validated the use of student ratings as effective measures of teaching performance. It was noted that student ratings were more valid because of the differing goals of teachers and students. Students rated teachers on the basis of what the teacher was doing for the student at the time rather than from a long-range goal standpoint (1971:437).

Guthrie conducted research on the reliability of student ratings of teaching effectiveness. Two groups of students were asked to evaluate their teachers at the end of two successive school years. She found correlations of .87 with one group and .89 with the other on the ratings

as given over this time period (1954:1-21).

In summary, on the basis of research relating to the use of ratings by supervisors and administrators, teacher-peers, self-ratings, and students, certain assumptions were reached which have a bearing on this study. There can be little doubt that the subject of teacher evaluation is often confusing and tremendously complex. There can be little doubt that it is often conducted haphazardly and without a clear definition of performance, attention to proper conditions of testing, or proper evaluation procedures. It is often conducted without the use of properly designed test instruments. It is concluded that attention must be directed toward involving others in the rating process in an effort to overcome the other short-comings so often present in the evaluative procedure. From this standpoint the following may be concluded:

1. Administrators and supervisors often base evaluation of teaching performance on casual observations without a clear definition of the purpose of the rating process, and with the outcomes often colored by personal biases. Nevertheless, there is evidence which supports the merit of these ratings both in terms of validity and reliability.
2. Teachers are often reluctant to rate other teachers, either because of limited knowledge of their activities or because of a fear of repercussion from those being rated. Teachers often tend to rate their peers higher than the ratings given by other groups.
3. Research on the use of self-ratings is limited and few inferences, if any, can be drawn. It would appear, however, that teachers often rate themselves lower than ratings given by other groups.

4. Arguments both for and against the use of student ratings are in abundance. Studies have concluded that they are reliable and that students have the ability and maturity to make accurate judgments. Other studies indicate that students often abuse and misuse the opportunity to participate in the evaluating process. No clear conclusion can be reached on this issue, based on the available research.

RELATED RESEARCH

No research has been found which is specifically concerned with the relationship of trade experience, teaching experience, and professional preparation to the classroom teaching performance of vocational industrial education instructors. There are, however, some studies which draw conclusions of a nature useful to this particular problem.

Pfahl conducted a study of the attitude and teaching performance of 149 degree and non-degree industrial-technical instructors in the secondary schools and community colleges of Oregon. These instructors represented the subject areas of electronics, drafting, mechanics, welding, metals, and construction technologies. This study resulted in the following conclusions:

1. The amount of formal education a teacher has completed affects his classroom performance.
2. Non-degree instructors received higher ratings of performance than those with a baccalaureate degree.
3. Oregon industrial education students taught by non-degree instructors are generally receiving instruction as good as those being taught by teachers with the baccalaureate degree. (1971:1-94)

The aforementioned study did not, however, attempt to relate the effects of trade experience and teaching experience to classroom teaching performance; nor were other measures of performance used except student assessments and a teacher self-study. In addition it was pointed out that industrial arts and community college instructors were grouped under the heading "vocational-technical" and were not separated to determine the effects of their varied backgrounds—traits and abilities of a nature inherently different from secondary school vocational industrial day trade instructors.

Musgrove conducted a study of the relationship of occupational experience, teaching experience, technical training and college training in rating the teaching effectiveness of 210 vocational electronics teachers at the secondary level. The following conclusions were reached:

1. There was a positive relationship between occupational experience and teacher effectiveness when measured on a teacher self-rating.
2. There were no relationships between occupational experience and teacher effectiveness when rated by supervisors and students.
3. There was a positive relationship, when rated by supervisors, between the amount of teaching experience and teacher effectiveness.
4. When rated by students and teachers on a self-rating there were no significant relationships between the amount of teaching experience and teacher effectiveness.
5. The student ratings and teacher self-ratings indicated a negative relationship between the amount of college training and electronics teacher effectiveness.

6. The supervisor ratings indicated no relationship between the amount of college training and electronics teacher effectiveness.

7. The supervisor ratings, the student ratings, and the teacher self-ratings indicated no significant relationship between the amount of electronics technical training and subsequently rated teacher effectiveness. (1968:1-100)

Although this study was conducted with electronics teachers, using only three measures of performance, the results are relevant to the nature of this study.

Croom studied the competencies of 127 North Carolina occupational teachers representing the fields of agriculture, home economics, business, trade and industry, distributive education, health occupations, vocational exploratory, disadvantaged, and handicapped. He reached the following conclusions:

1. Although "outstanding" occupational teachers had acquired proportionally more college degrees than other teachers, the difference was not found to be statistically significant and was thus not considered as an influence on teacher performance.

2. "Outstanding" teachers had more years teaching experience in their current programs and had more years total teaching experience.

3. "Outstanding" teachers had participated in more kinds of educational experiences, with the number of teachers participating in such experiences being significantly greater.

4. For most occupational programs, fewer "outstanding" teachers had been employed in wage earning jobs.

5. Trade and industrial education teachers had more work

experience in job situations related to their teaching field than other occupational teachers. (1972:1-152)

Delzer concluded that post secondary technical teachers should have three to five years of work experience, high school technical teachers should have two years of post secondary education, and provisional credentialing requirements should require seven hours of pre-service vocational teacher education for secondary certification. His study was based on the responses of three hundred full-time technical teachers and administrators having responsibility for vocational education. Subjects were asked to respond to questions on a survey concerned with the need for work experience and professional training as related to teaching effectiveness (1972:1-130).

In summary, on the basis of the limited research found on this topic, some conclusions may be drawn relating to this study:

1. It is difficult to ascertain the effects of formal education upon classroom teaching performance.
2. While one study (Pfahl, 1971:1-94) found a positive relationship between education and performance, other studies (Musgrove, 1968: 97-100) and (Croom, 1972:1-152) found either no relationship or a negative relationship between these two variables.
3. Occupational experience may or may not affect classroom teaching performance of vocational industrial education instructors, depending on the vocational field.
4. Classroom teaching performance ratings may or may not increase with a rise in years of teaching experience.
5. An increase in the number of hours of vocational industrial

education courses taken should lead to increased ratings of teacher performance.

Chapter 3

PROCEDURES

Chapters one and two presented an introduction to the study, a review of related literature, and a theoretical framework. In chapter three, the sample population, the development of the research instrument, the pilot study, procedures for the collection of data, the dependent and independent variables, and the methods of data analysis are considered.

SAMPLING METHODOLOGY

Using the 1973-74 Directory of Trade and Industrial Education Programs in Virginia (State Department of Education, 1973a:1-44), an initial population of 481 instructors was identified who were employed on a full-time basis either in public Virginia secondary high schools or occupational centers, during the 1973-1974 school year. With the cooperation of the Division of Teacher Certification and the Trade and Industrial Education Service of the Virginia State Department of Education, a study was made of the certification records and data information sheets of each instructor. The following information was obtained:

1. Teaching experience, in years, at any grade level in public or private elementary schools, secondary schools, colleges, or universities, was recorded. Private, professional school, or military teaching was not included inasmuch as it was difficult to readily identify the

nature of the actual teaching assignments from the available data.

2. Years of trade experience identified as "beyond the learning period" for each given trade were taken from data supplied by the Trade and Industrial Education Service. This information was used by the Trade and Industrial Service as a basis upon which certification recommendations were made.

3. Semester credit hours of undergraduate or graduate professional education courses were identified by analysts of the Division of Teacher Certification, State Department of Education. Professional education credits accepted were those dealing with history and philosophy of education, comparative education, curriculum development, instructional methodology, teaching techniques, evaluation, administration and supervision, audio-visual development and implementation, and student teaching.

4. Semester hour credits of any courses having a vocational education, vocational technical education, or vocational industrial education prefix (VED, VTE, or VIED) were obtained from records in the Trade and Industrial Education Service of the State Department of Education.

Of the 481 instructors on whom data were collected, 28 were found to have incomplete or missing data and were subsequently eliminated from the study. For each of the 453 instructors remaining, categories of trade experience, teaching experience, and total hours of education (both regular education courses and vocational industrial or vocational technical courses) were assigned as given in Table 3.

Table 3

Classification Limits of Trade Experience, Teaching Experience,
and Professional Education

Variable	Low	High
Trade Experience	0-5 Years	6+ Years
Teaching Experience	0-5 Years	6+ Years
Professional Education	0-12 Semester Hours	13+ Semester Hours

The limits established for these categories were derived on the basis of consultations with State Department of Education personnel over a series of several meetings. On the basis of these meetings, it was decided that each of the three factors—trade experience, teaching experience, and professional education credits—would be divided into two levels. Specifically, the classification limits were established as follows:

1. Zero to five years was set as low trade experience on the basis of established certification standards for vocational industrial education instructors in most states (Swartz, 1974). More than five years was classified as high trade experience.

2. Low teaching experience was established as 0-5 years. More than five years was classified as high teaching experience, conforming with recommended tenure policies of a majority of local school divisions in Virginia.

3. The limits were set at 0-12 semester credit hours as low professional education, and 13 or more semester credit hours as high

professional education. This conforms to a requirement by the State Department of Education (1973b:42) that all non-degree vocational industrial education instructors earn at least 12 semester credit hours in vocational industrial education or general education during the first five year period of teaching endorsement.

The instructors were grouped into one of the following classifications as shown in Table 4 in order to randomly select, on a stratified basis, the study sample:

Table 4
Group Classifications By Independent Variables

Group Number	Independent Variables		
	Trade Experience	Teaching Experience	Professional Education
I	Low	High	High
II	Low	High	Low
III	High	Low	High
IV	High	Low	Low
V	High	High	High
VI	High	High	Low
VII	Low	Low	High
VIII	Low	Low	Low

A total of 43 instructors were identified as Group I, 9 as Group II, 36 as Group III, 171 as Group IV, 75 as Group V, 24 as Group VI, 26 as Group VII, and 69 as Group VIII. From this population, a sample of nine instructors was selected from each group.

Since Group II had only nine instructors, all were chosen. Teachers of the remaining groups were numbered consecutively and nine were randomly selected using Peatman's and Schafer's Table of Random Numbers (1942:296-297). Thus a total of 72 instructors from the population of 453 teachers was selected for the study.

Using the same random selection procedures, 24 additional instructors (3 from each group except Group II) were selected as alternate sample groups in the event it became necessary to replace some of the instructors from the original sample. Alternates chosen by groups would have permitted the replacement of such instructors with others of similar levels of trade experience, teaching experience, and professional education.

Roscoe (1969:157) recommends the use of a sample which is one-tenth the size of the parent population. Although a sample of 72 instructors was considerably larger than this recommendation, it was anticipated that (1) some instructors would decline to participate in the study, (2) some school divisions might refuse permission to conduct the study, and (3) a complete return of all performance ratings would not be forthcoming, hence the use of a larger initial group.

A letter was written to each of the 72 instructors explaining the purpose and objectives of the study and asking their help and cooperation in the project (Appendix B). In addition, each superintendent of the 38 school divisions represented was mailed a letter (1) requesting his permission to conduct the study and (2) listing the selected instructors in his school division (Appendix C). Eight teachers declined to participate and two school divisions, representing four teachers,

did not grant permission to conduct the study, necessitating the replacement of 12 instructors with alternates. The 72 instructors, selected in the aforementioned manner, became the subjects upon which this study was based.

INSTRUMENTATION

Development

Four rating forms were developed by utilizing a panel of experts to determine the important factors which should be evaluated in the classroom teaching performance of vocational industrial education instructors.

As an initial step in the development of the rating scales, a review of literature was conducted. Copies of existing performance ratings found in doctoral dissertations, published commercial rating scales, and ratings used by local school divisions were obtained and reviewed. Through an examination of the aforementioned instruments and with the counsel of members of local and state vocational industrial education supervisory staffs, four separate rating devices were designed (Appendix A). One scale was developed for use by both supervisors and administrators, and one each was developed for students, teacher-peers, and self-rating.

These initial ratings were then submitted to a committee of experts who were familiar with the duties of vocational industrial education instructors. This committee was composed of members of the Virginia Trade and Industrial Education Service staff, two local vocational education directors, and two national experts in the field of vocational

education (Appendix D). In a cover letter, the members were asked to assess the face validity of the instruments and to suggest revisions as needed (Appendix E). On the basis of the committee's recommendations, the instruments were revised into their final form.

The performance ratings contain 17 items on the supervisor and administrator, teacher-peers, and self-rating scales, and 16 items on the student scale. Each item contains an ipsative response ranging from 1 (lowest response) to 5 (highest response). Each rating also contains an overall performance evaluation item. Statements or questions which explain the meaning of each item are included, based on a given operational definition of classroom teaching performance.

Face validity. Ary, Jacobs, and Razavieh (1972:192-193) define face validity as "a subjective evaluation by judges as to what a measuring device appears to measure." It was necessary to employ this measure of validity rather than concurrent validity inasmuch as no appropriate criterion was available for comparison of the performance ratings.

The expert committee was asked to study the items of the instrument and to ascertain if they were valid measures of teaching effectiveness. Written comments concerning the face validity of the instruments were received from two members of the expert committee. Two others expressed verbal support of their validity and one failed to comment (Appendix F).

On the basis of these verbal and written comments, it was concluded that the rating instruments designed for this study were valid

measures of classroom teaching performance of vocational industrial education instructors.

PILOT STUDY

The primary purposes of the pilot study were twofold: (1) to test the research procedures used in the study and (2) to establish reliability of the instrument.

The pilot test sample and procedures used in the pilot test closely paralleled those of the main study. The pilot study was conducted during the period of January 28-February 20, 1974.

Reliability

The test-retest method was used to establish reliability coefficients of the instruments. According to Roscoe (1969:103-104) test-retest reliability is based on the premise that a particular trait is fairly stable over a given period of time, in particular, over the period of time between each administration of a test.

A total of 42 ratees were chosen at random from among the remaining population of instructors. Random selection procedures, as previously described, were used, based upon data provided by the Directory of Trade and Industrial Education Programs in Virginia (State Department of Education, 1973a:1-44). Raters of the ratees were mailed the appropriate survey form (i.e., administrator and supervisor rating, teacher-peer rating, or self-rating), a cover letter explaining the purpose of the pilot study, and directions on the use of the instrument (Appendix G). Rating forms were numbered for identification purposes, and follow-up

procedures involving the mailing of post cards and placement of telephone calls were conducted. All 42 ratings were returned.

The student form was administered to 76 trade preparatory students at Blacksburg High School, Montgomery County, Virginia. These students were enrolled in two auto mechanics classes, two masonry classes, and two cosmetology classes.

After a time lapse of three weeks a second administration of the supervisor and administrator, teacher-peer, and self-rating forms was conducted using the same raters. The student forms were administered to the same vocational trade preparatory classes at Blacksburg High School after a three and one-half week period. Follow-up procedures were again conducted on the mailed forms resulting in a 100 percent rate of return. Of the 76 student forms returned, 60 were usable. All forms which were not used were a result of students' absences on the second day of the administration of the ratings.

The values assigned to each item were added to produce a total score on the performance rating. Thus two sets of scores were generated by the raters, or one set for each administration of the ratings. The total scores were then utilized to calculate the Pearson product moment correlation coefficients. The computer center facilities at Virginia Polytechnic Institute and State University were used for all computational work. The resultant figures are shown in Table 5.

The correlation coefficients show that the reliability of the instruments were high. The results indicate that the ratings given by the raters were consistent over a period of time. Although the student rating appears to have a lower reliability coefficient than the other

Table 5

Pearson Product Moment Correlation Coefficients for
Reliability of Rating Instruments

Type of Form	Number of Raters	Reliability
Administrator*	n=10	r=.925
Supervisor*	n=10	r=.932
Teacher-Peer	n=11	r=.828
Self-Rating	n=11	r=.919
Student	n=60	r=.701

*Same form

ratings, approximately 50 percent of the variance is accounted for since variance is the square of the correlation coefficient. According to an expert on this matter, this level of correlation is sufficient justification for use of the student rating as a reliable measure of teaching performance.

DATA COLLECTION

A total of 72 instructors were identified for the purpose of obtaining ratings on their teaching performance. Performance ratings were obtained from five sources as described below:

School administrators. A performance rating was obtained from either the director, principal, assistant director, or assistant principal of the secondary high school or vocational-technical center where the instructor was employed. The supervisor and administrator rating form was utilized to obtain these performance measures.

Supervisors. A performance rating was obtained from either the local school division director of vocational education, supervisor of vocational education, supervisor of trade and industrial education, general supervisor, or secondary supervisor. The supervisor and administrator rating was used for this purpose.

Teacher-peers. Two teacher-peers were randomly chosen from among all regular trade preparatory teachers within the school for the purpose of obtaining peer ratings. In schools where there were only three trade preparatory programs, both peer teachers were mailed the rating forms. The random selection was based on Peatman's and Schafer's Table of Random Numbers (1942:296-297). The teacher-peer rating form was used in this process.

Self-rating. Each instructor was asked to rate himself, using the self-rating form.

Students. Student ratings were obtained from one class for each instructor. A packet of 15 student rating forms was mailed to the school where the instructor was employed. Each principal or director was contacted by phone and asked to appoint someone, other than the instructor on whom the rating was obtained, to be responsible for the administration, collection, and return of the completed instruments. The packets contained detailed instructions for the administration of the ratings and the selection procedure for classes with less than or more than 15 students (Appendix H).

All surveys were conducted by mail and sent to the place of employment for each of the raters, during the period from February 27 to March 5, 1974. The individual evaluation packets contained a cover

letter (Appendix I), return envelope, and postage. Each rating was numbered and color coded by groups for easy identification upon return.

Mail surveys restricted the researcher to the use of data collected in a largely uncontrolled environment, as the respondents were free to complete the survey at their own pace and location. Inasmuch as a major source of errors encountered in the use of direct mail questionnaires is misinterpretation of items and slowness of response, efforts were expended to insure accuracy of directions, simplicity in wording and phrasing, and clarity.

Three weeks were allowed for response before follow-up procedures were initiated. Post cards were then mailed to all who had not returned the completed ratings. If the first reminder failed to elicit a response after one week, it was followed by a phone call directly to the rater.

Travers (1969:199-200) stated that the normal maximum rate of return for a mail survey is 40 percent. Obviously this type of data collection often limits the researcher in quantity, as well as quality of data collected. It was anticipated, however, that a much higher return rate would be obtained because of the nature of this study, and the spirit of cooperation and interest exhibited by the administrative personnel with whom consultations were held. The researcher's past experience in dealing with personnel in vocational industrial education led him to believe there would be a larger than normal rate of return.

This prediction was proved accurate. By April 10, 1974, 94 percent or 406 of the 432 performance rating packets had been returned. Since individual classes were used for the student ratings, with varying numbers of students, each class was considered as one rating.

ANALYSIS OF THE DATA

Each completed performance rating was audited to determine its completeness. If all items were not completed, the rating was returned for the needed changes. Because the importance of answering all items had been stressed in the directions, very few ratings needed this correction. Table 6 shows the number of questionnaires mailed and the number and percentage of those returned by each of the subgroups.

Table 6

Summary of Questionnaires Mailed and Number and Percentages Returned by Subgroups

Subgroup	Number Mailed	Number and Percentage Returned
Administrators	72	67 (93%)
Supervisors	72	71 (98%)
Teacher-Peers	144	134 (93%)
Self-Ratings	72	68 (94%)
Students	72*	66 (92%)
*Each class considered as one rating		
Totals	432	406 (94%)

Ratings were manually key-punched onto data processing cards with the score for each item transferred to the card. Each rating was re-checked for accuracy in the transfer process.

All data analyses were conducted using the computer center facilities at Virginia Polytechnic Institute and State University.

VARIABLES

Variables for this study centered around the performance evaluations of five groups—school administrators, supervisors, teacher-peers, teachers on a self-rating, and students. Each group evaluated the classroom teaching performance of vocational industrial education instructors, as they perceived them, based upon the operational definition of classroom teaching performance given on the rating form.

The background variables designated were trade experience, teaching experience, and professional education.

STATISTICAL METHODOLOGY

Four statistical tools were employed in analyzing the data of this study.

Multivariate analysis of variance (MANOVA) was used to test for differences between the factors of trade experience, teaching experience, and professional education with respect to the mean ratings of the five groups (i.e. supervisors, administrators, teacher-peers, students, and self-ratings). Kerlinger defined multivariate analysis of variance as:

. . . a general term used to categorize a family of analytic methods whose chief characteristic is the simultaneous analysis of k independent variables and m dependent variables. If an analysis includes, for instance, four independent variables and two dependent variables, handled simultaneously, it is a multivariate analysis (1973:149).

The second analysis, chi-square, served to test the relationship of total hours of education and hours of vocational industrial education. Ary, Jacobs, and Razavieh stated:

Sometimes we need to find the significance of differences among the proportions of subjects, objects, events, and so forth, that fall into different categories. A statistical test used in such cases is called the chi-square test (1972:151).

Stepwise discriminant analysis was employed to analyze the dimensions on the performance ratings which separated each of the five groups. In order to identify these dimensions, discriminant analysis computes the coefficients for canonical variables which show the degree to which each item on the rating scale contributes to each dimension. On the basis of expert opinion, those items which had a coefficient of .35 or greater were considered important and were subsequently used in naming the dimension.

Kerlinger, in defining discriminant analysis, stated:

A discriminant function is a regression equation with a dependent variable that represents group membership. The function maximally discriminates the members of the group; it tells us to which group each member probably belongs. In short, if we have two or more independent variables and the members of, say, two groups, the discriminant function gives the "best" prediction, in the least-squares sense, of the "correct" group membership of each member of the sample (1973:650).

Factor analysis was used to determine which items on the rating scale each of the five groups emphasized, thus identifying teaching effectiveness factors. In order to establish a basis for the identification of the factors, only those items with factor loadings of .50 (absolute value) and above were used. This criterion was based upon expert opinion.

Kerlinger defined factor analysis as:

. . . a method for determining the number and nature of the underlying variables among larger numbers of measures. More succinctly, it is a method for determining k underlying variables (factors) from n sets of measures, k being less than n . It may also be called a method for extracting common factor variances from sets of measures (1973:659).

The appropriate hypotheses of this study were tested at an alpha level of .05.

GRAPHICAL ILLUSTRATION

A graphical illustration of the data analysis appears in Figure 1. This illustration was included to add clarity to the processes used in assessing the results of this study.

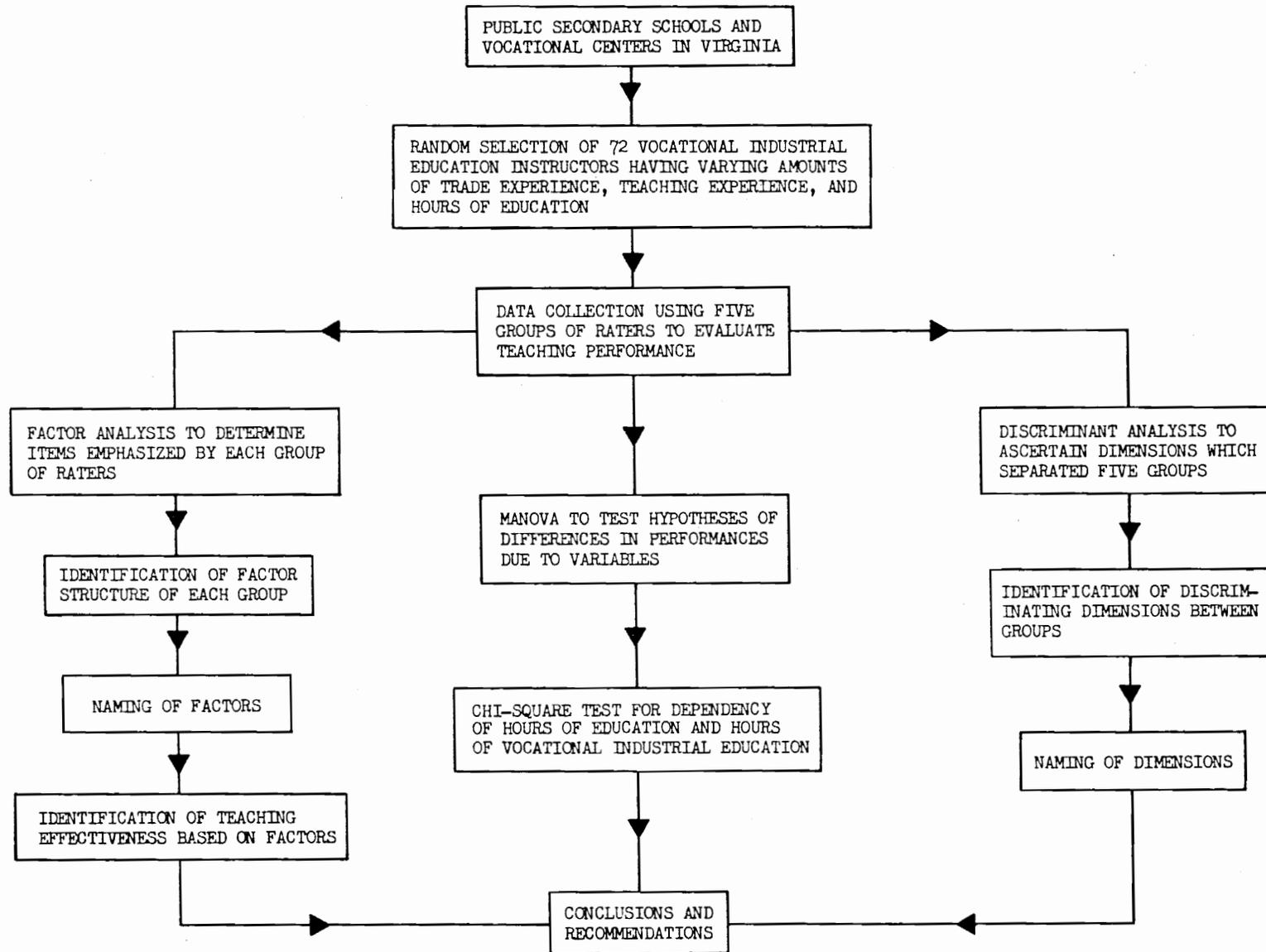


Figure 1
Graphical Illustration of the Data Analysis

Chapter 4

PRESENTATION AND ANALYSIS OF THE DATA

INTRODUCTION

The results of this study are presented in four sections:

Section I deals with the use of multivariate analysis of variance (MANOVA) to test differences in teaching performance among teachers having different levels of trade experience, teaching experience, and professional education, as rated by the five groups of raters.

Section II discusses teaching effectiveness and its relationship to total semester credit hours of professional education and semester credit hours of vocational industrial education.

Section III presents the results of discriminant analysis to determine the differences in the ratings of the five groups—school administrators, supervisors, teacher-peers, teachers on a self-rating, and students—and the discriminating dimensions which separate these groups.

Section IV contains the results of a factor analysis of responses given by the groups of raters for the purpose of identifying factors of teaching effectiveness emphasized by each group.

SECTION I. MULTIVARIATE ANALYSIS OF VARIANCE (MANOVA)

Section I presents the analysis and interpretation which resulted from using multivariate analysis of variance (MANOVA) to test

the following hypotheses:

Hypothesis I. Those instructors having low trade experience (T) will receive lower classroom teaching performance ratings than those instructors with high trade experience.

Hypothesis II. Those instructors having low teaching experience (E) will receive lower classroom teaching performance ratings than those instructors having high teaching experience.

Hypothesis III. Those instructors having low levels of professional education (H) will receive lower classroom teaching performance ratings than those instructors having high levels of professional education.

MANOVA is useful in testing the simultaneous effects of more than one variable. In addition, the MANOVA computer program also computes analysis of variance (ANOVA) and is therefore useful on single variable comparisons. Kendall (1968:6) defines multivariate analysis as ". . . the branch of statistical analysis which is concerned with the relationship of sets of dependent variates."

Sources of Data

Each instructor was rated by (1) one school administrator, (2) one supervisor, (3) two teacher-peers, (4) a teacher self-rating, and (5) four to fifteen students. Teaching performance of an instructor was defined in terms of total score on the instrument. Each item of the instrument was assigned a value from 1 (low) to 5 (high) to indicate the rating given by a rater. The item scores were added to get the total score which reflected the teaching performance of an instructor.

A mean total score of each group of raters was computed for each teacher. Each instructor then had five measures of his classroom teaching performance as received from (1) a school administrator, (2) a supervisor, (3) teacher-peers, (4) a self-rating, and (5) students.

Means and standard deviations of groups of raters by teacher's characteristics are given in Table 7.

Analysis of variance (ANOVA) was used to assess the effects of trade experience, teaching experience, and professional education on classroom teaching performance, when rated by individual groups of raters.

A significance level of .05 ($\alpha = .05$) was selected a priori to test the null hypotheses of mean performance ratings between teacher characteristics. Table 8 presents the results of ANOVA of administrators' ratings, as shown on page 53.

The F value of 5.678 for trade experience was significant ($\alpha = .05$). Therefore the null hypothesis of no difference in the mean ratings between those instructors who have high levels of trade experience and those instructors with low levels of trade experience was rejected. The findings indicated that school administrators rate differently those instructors who have low trade experience and those instructors who have high trade experience.

The graph in Figure 2 illustrates that instructors with high levels of trade experience received higher ratings from school administrators than instructors with low levels of trade experience.

Table 9 presents the results of ANOVA to test differences in the mean performance ratings given by supervisors.

Table 7

Means and Standard Deviations for Groups of Raters on Trade Experience,
Teaching Experience, and Professional Education

Variable		Number of Observations	School Administrators		Supervisors		Teacher Peers		Self-Rating		Students	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Trade	Low	n=31	3.82	.538	3.88	.529	3.92	.592	3.76	.404	4.18	.351
Experience (T)	High	n=31	4.13	.498	4.08	.567	4.12	.437	4.07	.523	4.27	.268
Teaching	Low	n=31	3.97	.495	3.95	.560	4.07	.611	3.89	.453	4.30	.260
Experience (E)	High	n=31	3.97	.585	4.01	.554	3.97	.430	3.94	.526	4.15	.346
Total Hours	Low	n=30	4.04	.520	4.08	.550	4.00	.521	3.78	.464	4.24	.290
of Education (H)	High	n=32	3.91	.554	3.89	.548	4.03	.539	4.04	.484	4.21	.337

Table 8

Analysis of Variance of Ratings by Administrators

Source	df	MS	F
T	1	1.519	5.678*
E	1	.002	.008
H	1	.259	.968
TE	1	.232	.866
TH	1	.255	.952
EH	1	.276	1.030
TEH	1	.646	2.416
ERROR	54	.267	
TOTAL	61		

*Significant at .05 level

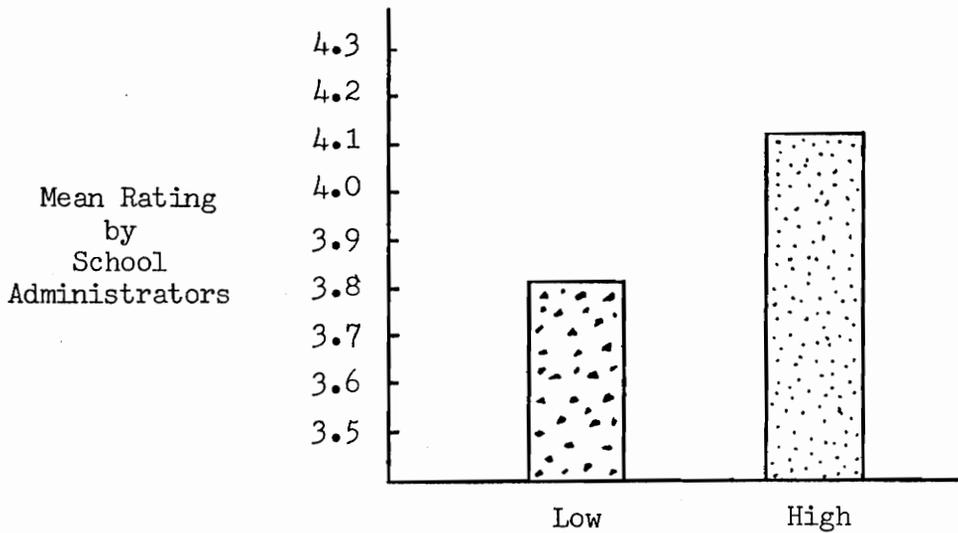


Figure 2

Mean Rating by Administrators for Low and High Trade Experience Instructors

Table 9
Analysis of Variance of Ratings by Supervisors

Source	df	MS	F
T	1	.615	2.144
E	1	.059	.205
H	1	.586	2.041
TE	1	.004	.013
TH	1	1.301	4.530*
EH	1	.585	2.039
TEH	1	.017	.060
ERROR	54	.287	
TOTAL	61		

*Significant at .05 level

When rated by supervisors, the interaction effects of trade experience (T) and professional education (H) is significant at the .05 level. The interaction effects of these variables is graphically illustrated in Figure 3.

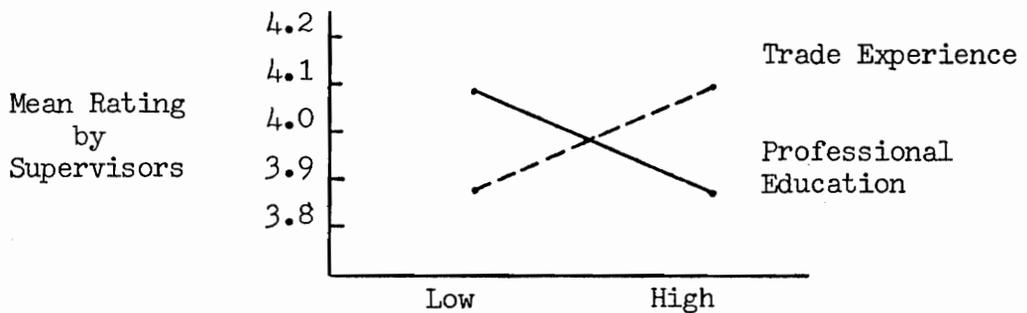


Figure 3

Interaction Effects of Trade Experience
and Hours of Education

Table 10 presents the results of ANOVA to test differences in the mean performance ratings of teacher-peers.

Table 10
Analysis of Variance of Ratings by Teacher-Peers

Source	df	MS	F
T	1	.633	2.195
E	1	.146	.506
H	1	.008	.028
TE	1	.019	.065
TH	1	.347	1.205
EH	1	.137	.476
TEH	1	.038	.132
ERROR	54	.288	
TOTAL	61		

When rated by teacher-peers, the differences in the mean performance ratings of vocational industrial education instructors were not statistically significant for any source ($\alpha = .05$).

Table 11 presents the results of ANOVA to test the differences in the mean performance ratings of vocational industrial education instructors using a self-rating.

The differences in the mean performance ratings for those vocational industrial education instructors who have low trade experience and those instructors who have high trade experience are statistically significant when rated by instructors on a self-rating at the .05 level.

Table 11
Analysis of Variance of Self-Ratings

Source	df	MS	F
T	1	1.411	6.500*
E	1	.065	.300
H	1	1.001	4.614*
TE	1	.082	.378
TH	1	.013	.060
EH	1	.216	.997
TEH	1	.010	.048
ERROR	54	.217	
TOTAL	61		

*Significant at .05 level

A graphical illustration of the differences in these mean ratings is presented in Figure 4.

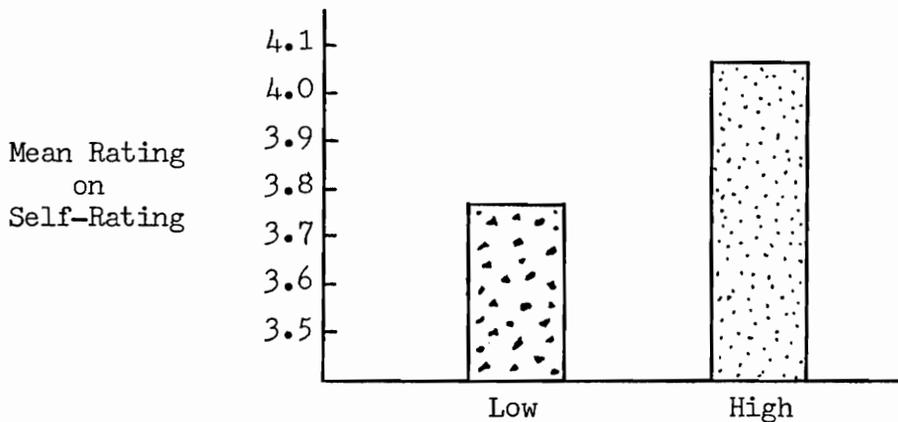


Figure 4

Mean Rating by Instructors on a Self-Rating for
Low and High Trade Experience

The preceding graphical illustration shows that there are differences in the mean performance ratings of those instructors with low and high trade experience when rated by instructors on a self-rating instrument ($\alpha = .05$). Teachers with high trade experience rated themselves higher than those with low trade experience.

The differences in mean performance ratings for those vocational industrial education instructors who have a low level of professional education and those who have a high level of professional education are statistically significant when rated by instructors on a self-rating instrument at the .05 level.

The means are presented graphically in Figure 5.

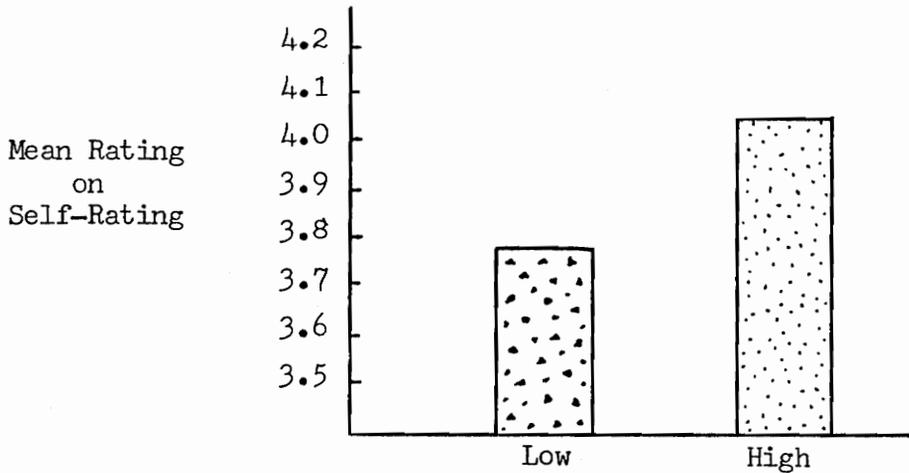


Figure 5

Mean Rating by Instructors on a Self-Rating for High and Low Levels of Professional Education

This graph shows the difference in the mean performance rating of instructors on a self-rating for low and high levels of professional

education. Instructors with high levels of professional education received higher mean ratings than those of low professional education, when self-evaluated.

Differences in the mean performance ratings assigned by students were not statistically significant at the .05 level. The analysis of variance for student ratings is presented in Table 12.

Table 12
Analysis of Variance of Ratings by Students

Source	df	MS	F
T	1	.125	1.349
E	1	.344	3.711
H	1	.010	.112
TE	1	.227	2.447
TH	1	.166	1.788
EH	1	.045	.483
TEH	1	.050	.537
ERROR	54	.093	
TOTAL	61		

The results of ANOVA indicated that there were inconsistencies among the ratings given by the five groups. Therefore, the multivariate analysis of variance was conducted in order to test the differences between the instructors when all five ratings were analyzed together.

Multivariate analysis of variance (MANOVA) was used to test the effects of trade experience, teaching experience, and professional education when rated by the five groups of raters taken simultaneously.

MANOVA results are given in Table 13.

Table 13
Multivariate Tests of Significance for
Simultaneous Group Ratings

Source	df	F
T	(5,50)	2.215
E	(5,50)	1.172
H	(5,50)	1.506
TE	(5,50)	.896
TH	(5,50)	1.348
EH	(5,50)	.886
TEH	(5,50)	.810

Table 13 shows that when the mean ratings of all five groups of raters are analyzed together, there are no significant differences ($p < .05$) in the classroom teaching performance of those vocational industrial education instructors with low and high levels of trade experience, teaching experience, and professional education.

As a result, the null hypotheses of no differences in the performance ratings of those instructors with low and high levels of trade experience, teaching experience, and professional education were retained. Consequently, the hypotheses of differences in the performance ratings of different classes of instructors were not retained.

Summary of Section I.

1. Hypothesis I, concerning differences in the performance

ratings of those instructors with low trade experience, and those instructors with high trade experience was not retained. It was concluded that no differences ($p < .05$) were found in the classroom teaching performance ratings of those instructors with low and high trade experience when the ratings given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students were analyzed together.

2. Hypothesis II, concerning differences in the performance ratings of those instructors with low teaching experience and those instructors with high teaching experience, was not retained. No differences ($p < .05$) were found in the classroom teaching performance ratings of those instructors with low and high teaching experience when the ratings given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students were analyzed together.

3. Hypothesis III, concerning differences in the performance ratings of those instructors with low levels of professional education and those instructors with high levels of professional education, was not retained. No differences ($p < .05$) were found in the classroom teaching performance of those instructors with low and high levels of professional education when the ratings given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students were analyzed together.

4. When rated by school administrators, the differences in the mean performance ratings for those instructors who have low trade experience and high trade experience were statistically significant at the .05 level.

5. When rated by supervisors, the interaction effects of trade experience and hours of education causes the mean performance ratings of vocational industrial education instructors to be significantly different at the .05 level.

6. When rated by instructors on a self-rating, the differences in the mean performance ratings for those vocational industrial education instructors who have low trade experience and those instructors who have high trade experience were statistically significant at an alpha level of .05.

7. The differences in the mean performance ratings of those instructors with low levels of professional education and those instructors with high levels of professional education were statistically significant ($p < .05$), when rated by vocational industrial education instructors on a self-rating.

SECTION II. RELATIONSHIP BETWEEN LEVELS OF PROFESSIONAL EDUCATION AND VOCATIONAL INDUSTRIAL EDUCATION OF INSTRUCTORS

Section II presents a discussion on the relationship between professional education levels and vocational industrial education levels of instructors.

Most of the course work completed by the instructors in this study was in vocational industrial education subjects (Swartz, 1974); therefore, it was expected that instructors with high levels of professional education would also possess high levels of vocational industrial education. Similarly, those with low levels of professional education

would also possess low levels of vocational industrial education.

A 2 x 2 table was constructed. Frequency counts of the numbers of instructors for the four cells were obtained. They are given in Table 14.

Table 14

Two by Two Table for Chi-Square Test of Relationship of
Numbers of Instructors with High and Low
Professional Education and Vocational
Industrial Education

		Total Hours of Education	
		High	Low
Hours of Vocational Industrial Education	High	22	0
	Low	14	36

The chi-square test of significance was used to test the relationship between professional education and vocational industrial education levels. The chi-square value of 31.68 with 1 degree of freedom was significant beyond the .05 level. The null hypothesis that there is no relationship between professional education and vocational industrial education levels was rejected. The chi-square test showed that there is a significant relationship between the professional education level and vocational industrial education level of courses achieved by instructors.

SECTION III. STEPWISE DISCRIMINANT ANALYSIS

Stepwise discriminant analysis was used to identify those factors which separated the five groups of raters, namely school administrators, supervisors, teacher-peers, teachers on a self-rating, and students. The BMD ϕ 7M Program for Stepwise Discriminant Analysis was utilized for all computations. According to Tatsuoka (1971:62),

. . . we need to have a method (or several methods) for studying the differences among the groups in terms of many dependent variables considered simultaneously. For this purpose multivariate analysis tests are used. Further, if we wish to know what causes differences among groups, we use discriminant analysis techniques.

Cooley and Lohnes (1962:116) describe discriminant analysis as ". . . a procedure for estimating the position of an individual on a line that best separates classes or groups." It also allows the naming of the dimensions which contribute to group differences.

This section deals specifically with the following hypothesis:

Hypothesis IV. There will be significant differences in the mean performance ratings of instructors as given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

Sources of Data

The performance rating scores on each item, as provided by each rater, were used in this data analysis. Ratings were utilized from 67 school administrators, 71 supervisors, 134 teacher-peers, 68 self-ratings, and 796 students.

The items in the four rating instruments differed slightly in format and content, which made it necessary to omit two items and

rearrange two others. In addition items were identified on the performance rating instruments by letter ("A," "B," "C," etc.) which would have made interpretation confusing, as the ratings do not contain the same order or number of items (Appendix A). Therefore, those items common to the four instruments were identified and numbered from 1-15, as shown in Table 15, and were subsequently used in this data analysis.

Table 15

Items Common to All Rating Forms Used in Discriminant Analysis

Item Number	Item
1	"Professionalism" - Personal Characteristics
2	"Professionalism" - Staff Relations
3	Motivation of Students
4	Classroom Control
5	Vocational Subject Knowledge
6	Teacher Interest in Subject
7	Organization
8	Course Content
9	Communication Skills
10	Teaching Methods
11	Evaluation Techniques
12	Support of Student Organizations-VICA*
13	Use and Care of Physical Facilities and Equipment
14	Safety and Safety Instruction
15	Overall Performance

*Vocational Industrial Clubs of America

Test of the Hypothesis

The means and standard deviations, by groups, for each item are presented in Table 16.

Table 16

Group Means and Standard Deviations for Each Item

Variable	Administrators		Supervisors		Teacher-Peers		Self-Rating		Student	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	4.19403	0.82091	4.04225	0.86910	4.17910	0.87445	4.01471	0.70165	4.15829	0.80408
2	4.23881	0.85439	4.07042	0.86724	4.28358	0.82818	4.19118	0.75818	4.29774	0.81986
3	3.92537	0.65859	3.78873	0.79130	3.94030	0.83855	4.04412	0.65640	4.13065	0.87764
4	4.07463	0.82229	4.02817	0.71657	4.02985	0.85787	4.13235	0.71036	4.13693	0.98926
5	4.25373	0.57617	4.39437	0.72661	4.45522	0.77183	4.20588	0.65923	4.55276	0.76294
6	4.25373	0.76561	4.04225	0.76413	4.15672	0.79334	4.39706	0.62628	4.45729	0.79582
7	3.86567	0.85094	3.80282	0.78594	3.93284	0.84246	3.73529	0.74548	4.00879	0.86938
8	3.58209	1.03205	3.57746	0.83942	3.83582	0.96708	3.47059	0.87196	4.19849	0.83973
9	3.74627	0.78515	3.90141	0.77745	4.01493	0.81328	3.73529	0.80330	4.16457	0.89821
10	3.86567	0.69403	3.70422	0.86840	3.94030	0.83855	3.75000	0.83532	3.79271	1.01976
11	3.85075	0.72307	3.84507	0.72993	3.94776	0.78823	3.91176	0.76753	4.08794	0.93283
12	3.62687	1.12594	3.71831	1.08474	3.62687	1.23648	3.35294	1.21881	4.04146	1.04102
13	4.20895	0.80786	4.18310	0.76176	4.15672	0.86584	4.04412	0.81833	4.43593	0.79597
14	4.14925	0.72307	4.14084	0.72300	4.15672	0.78380	3.86765	0.80861	4.36181	0.81785
15	4.04478	0.68386	3.92958	0.72356	4.17910	0.74441	3.95588	0.63325	4.32035	0.82817

Discriminant analysis computes the λ value, taking all items together. This is then converted into an F value in order to test for significant differences in the mean group ratings. Table 17 presents the results of this analysis.

Table 17
Approximate F Value for All 15 Variables

U-Statistic	0.79298	Degrees of Freedom	15, 41131
Approximate F Value	4.45146*	Degrees of Freedom	60, 4362.43

*Significant at the .05 level

The results of this test show that the ratings do discriminate among the groups, as the tabled value of F for 60 and 4362.43 degrees of freedom is 1.39 at the .05 level. Thus the probability of securing group mean differences this large or larger by chance, when each of the five populations have identical mean vectors, is less than five in a hundred. As a result, the null hypothesis that there are no significant differences in the mean group performance ratings was not retained. The hypothesis that there are significant differences in the group ratings was retained.

Table 18 presents further evidence of the differences of the mean group ratings. The F-matrix comparison of groups indicates those groups in which the differences in the ratings are considered significant.

Table 18

F-Matrix Comparison of Group Means

Group Number	Administrators (1)	Supervisors (2)	Teacher- Peers (3)	Self- Rating (4)
Supervisors (2)	0.86470			
Teacher- Peers (3)	1.53299	1.14612		
Self-Rating (4)	2.25166*	2.62607*	3.42016*	
Student (5)	5.39985*	3.84348*	5.04472*	7.14566*

*Significant at .05 level

Table 18 shows a comparison of means of two groups at a time. Since the tabled value of F with 15 and 1,117 degrees of freedom is approximately 1.67, those values which are greater indicate significant differences at the .05 level in the mean performance ratings.

Figures 6, 7, and 8 serve to graphically illustrate these differences and are presented on pages 72 and 73 of this section.

The number and percentage of instructors classified into each group were also computed and are presented in Table 19. These data provided further evidence that the various groups rated differently,

Table 19

Number and Percentage of Raters Classified into Groups

Group	Administrators		Supervisors		Teacher-Peers		Self-Rating		Students		
	N=	n=	%	n=	%	n=	%	n=	%	n=	%
Administrators	67	22	33%	9	13%	10	15%	12	18%	14	21%
Supervisors	71	17	24%	17	24%	12	17%	9	13%	16	23%
Teacher-Peers	134	23	17%	18	13%	31	23%	19	14%	43	32%
Self-Rating	68	12	18%	7	10%	8	12%	32	47%	9	13%
Students	796	72	9%	86	11%	103	13%	102	13%	433	54%

not only as a group, but differently within each group.

Table 19 shows a comparison of the rating characteristics of the five groups of raters. For example, when the 67 administrators are compared on an individual basis with the other groups of raters, 22 (33 percent) of the administrators rated similarly to the typical administrator rating. Further, 14 (21 percent) rated similarly to the manner in which students rated the classroom teaching performance of vocational industrial education instructors. Other comparisons can be made from the data presented in Table 19 to show that there were inconsistencies in the way group members rated teaching performance, even within groups.

Interpretation of Dimension Analysis

Discriminant analysis also computes the sum of the squares on dimension (or factor) differences, namely eigen values. The root lambdas (λ 's), or the eigen values, are $\lambda_1 = .17487$, $\lambda_2 = .04413$, $\lambda_3 = .01800$, $\lambda_4 = .00983$, and $\lambda_i = .000$, where $i = 5, 6 \dots 15$. The relative sizes of λ indicate the extent to which the associated discriminant functions distinguish between groups. The following formula was used to test the significance of each root (Rao, 1952: 373):

$[(N - \frac{1}{2} (p + k)) \log_e (1 + \lambda)]$ distributed as χ^2 with

root 1 = $(p + k - 2)$ d.f.

root 2 = $(p + k - 4)$ d.f.

root 3 = $(p + k - 6)$ d.f.

root 4 = $(p + k - 8)$ d.f.

where:

N = total sample size, \log_e = natural log,

p = number of variables, λ = eigen value,

k = number of groups

The results of this test are presented in Table 20.

Table 20
Significance of the Discriminant Function
Chi-Square (χ^2) Approximations

Function	λ	d.f.	χ^2	p
1	.17487	18	176.782 *	< .05
2	.04413	16	43.914 *	< .05
3	.01800	14	22.520 *	< .05
4	.00983	12	10.130	> .05

As a result of this test, the first and second roots were found to be significant beyond the .005 level, the third is significant beyond .025.

Eigen value 1 (dimension I) accounts for 70.849 percent of the total variation between groups. The second eigen value (dimension II) accounts for 17.878 percent, and the third (dimension III) for 7.291 percent. The three dimensions account for 96 percent of the total variance.

Since only the first three λ 's were significant, the first three discriminant dimensions were used in the interpretations. These dimensions are called "discriminating dimensions" because they discriminate among the five groups of raters.

The group centroids for each dimension in the discriminant space are presented in Table 21. A group centroid is a weighted linear combination of the group item means for a given dimension. They are useful in plotting group differences graphically.

Table 21

Group Centroids for Each Dimension

Rater Group (Group Number)	Dimension		
	I	II	III
School Administrators (1)	.80360	.20205	-.26868
Supervisors (2)	.56165	.25461	-.22158
Teacher Peers (3)	.43864	.25648	.29533
Teachers on a Self Rating (4)	.86081	-.70009	.05739
Students (5)	-.26512	-.02308	-.01224

The locations of each of the group centroids, in two dimensional space are illustrated by the graphs in Figures 6, 7, and 8. Since it is more practical to illustrate two dimensions at a time, they are shown in this manner.

Taking the three dimensions together, Table 18 on page 67 shows that there is no difference between groups 1, 2, and 3, whereas there is a difference between the other groups. It appears that the five groups of raters form cliques or clusters. This is graphically pictured in Figures 6, 7, and 8. Since dimensions I and II account for roughly 88 percent of the total variance, the group clusters are evident in these plottings. That is, on dimensions I and II, group 1 (school administrators), group 2 (supervisors), and group 3 (teacher-peers) have a very distinct clustering, while groups 4 (teachers on a self-rating) and 5 (students) are distinctly separated from this cluster.

Dimensions I and III clusters groups 1 and 2 together, and

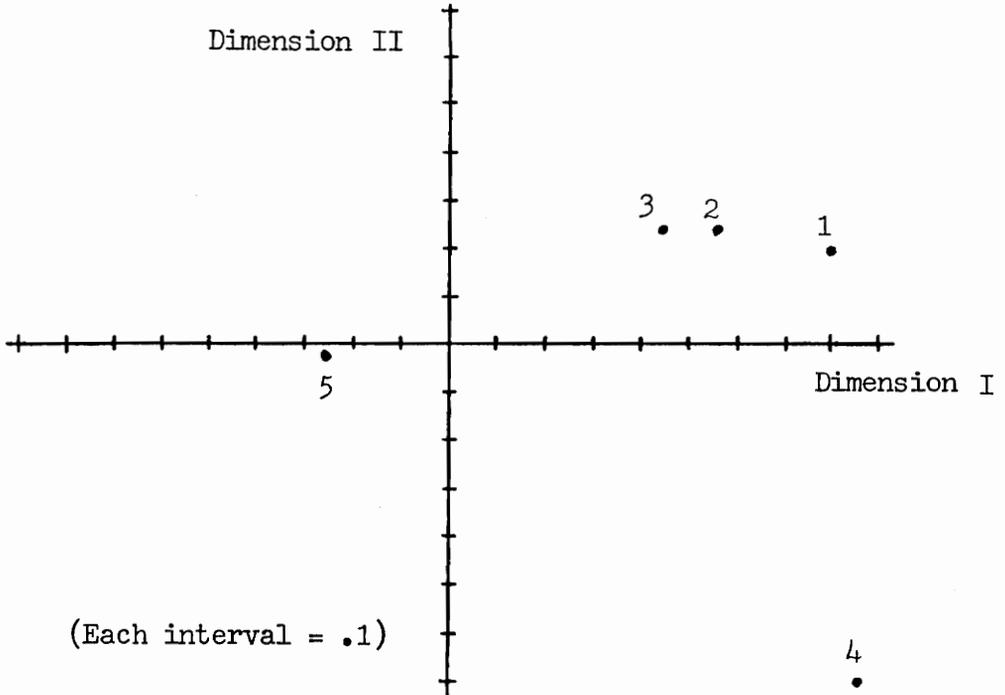


Figure 6

Plot of Centroids for Dimensions I & II

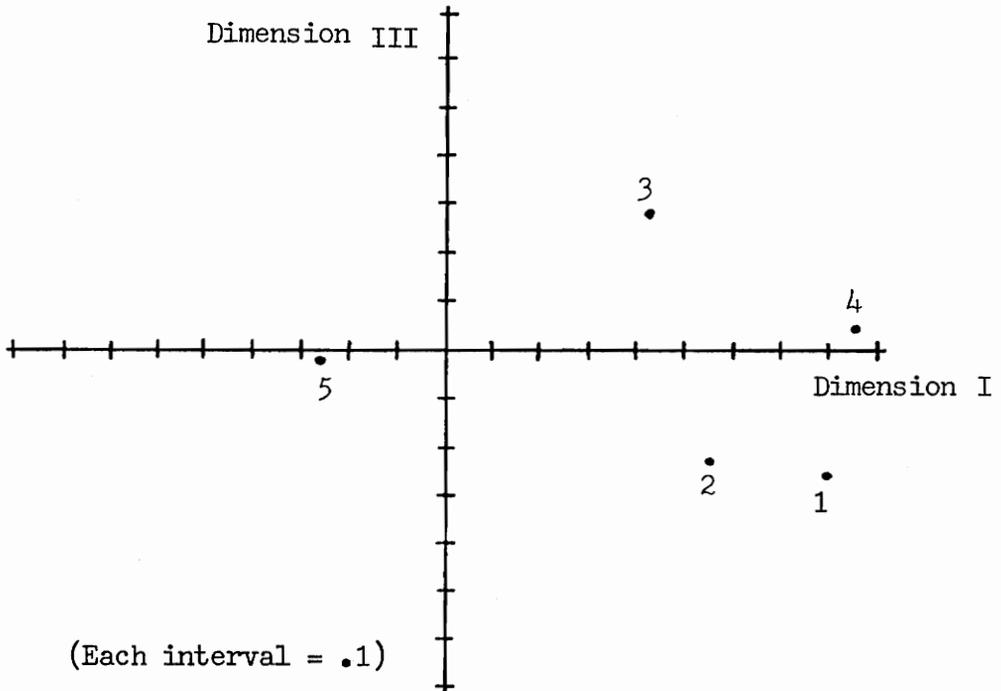


Figure 7

Plot of Centroids for Dimensions I & III

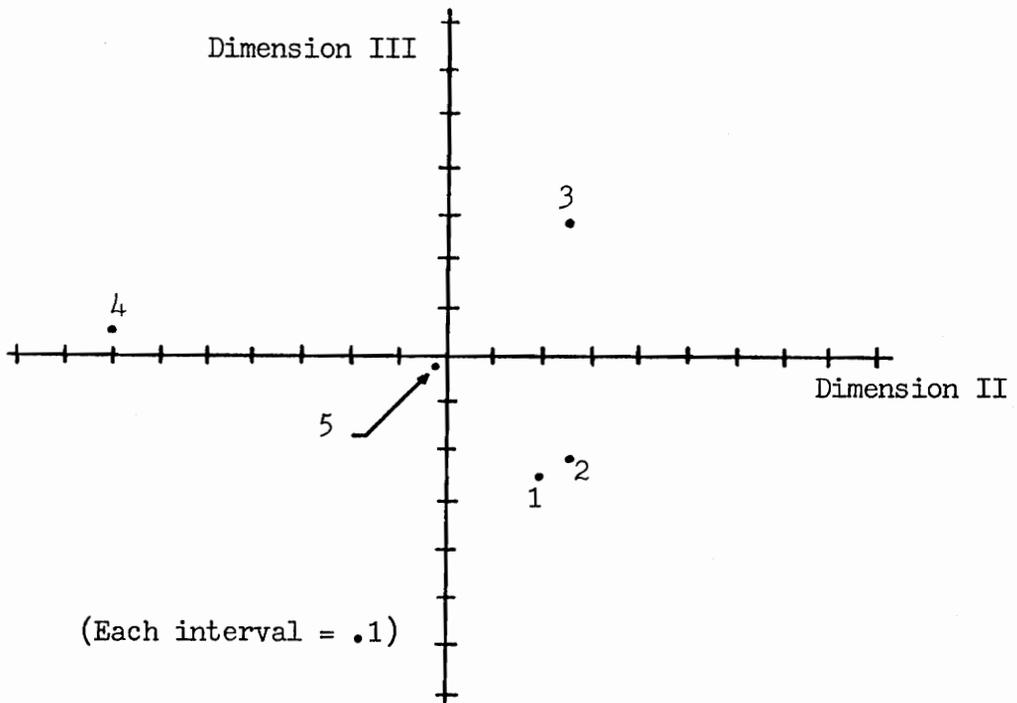


Figure 8

Plot of Centroids for Dimensions II & III

groups 3 and 4 in another pattern. School administrators (1) and supervisors (2) are clustered on dimensions II and III while the other groups of raters are separated from each other and from the cluster of 1 and 2.

Identification of Dimensions

The coefficients for canonical variables show the degree to which each item on the rating scale contributes to each dimension. In order to have a basis for identification of each dimension, only those items which had a coefficient of .35 or greater were used (Appendix J).

An analysis of the items identified on dimension I reveals that item 1, "Professionalism" - Personal Characteristics, measures personal attributes of the instructor which influence learning. Item 2, Course

Content, deals with the relevancy of the course, the use of a trade advisory committee, and clear progression from each unit of the course toward the final goal of preparation for work. Items 9, Communication Skills, and 10, Teaching Methods, provide insight into the instructor's actual teaching methods, types of instructional activities, and ability to communicate with students. Item 15, Overall Performance, provides an analysis of the total instructional ability of the teacher. Item 1 seems to be unrelated to the other items; however, it has a degree of relationship in that personal characteristics of an instructor may have some influence on the learning of students. Items 8, 9, 10, and 15 each relate to the manner in which an instructor attempts to convey information. This dimension, therefore, is best described as "Teaching Proficiency," since this concept deals with the skills and competencies used in the educational process.

Table 22

Dimension I. "Teaching Proficiency"

Item Number	Item	Coefficient
1	"Professionalism" - Personal Characteristics	0.43340
8	Course Content	-0.89946
9	Communication Skills	-0.39620
10	Teaching Methods	0.50674
15	Overall Performance	-0.40136

On dimension II, item 3, Motivation of Students, relates to the way the instructor instills in his students a desire to learn. Item 4,

Classroom Control, is a measure of the instructor's ability to maintain discipline in the classroom or laboratory. Items 5, 6, and 14 which deal with Vocational Subject Knowledge, Teacher Interest in the Subject, and Safety and Safety Instruction are concerned with the ability of the instructor to provide meaningful instructional skills to his students. They also deal with the knowledge and interest he shows in the trade subject he is teaching. As a result, dimension II was labeled, "Instructor's Ability to Promote Learning" because each item appeared to relate in some way to this central concept.

Table 23

Dimension II. "Instructor's Ability to Promote Learning"

Item Number	Item	Coefficient
3	Motivation of Students	-0.59308
4	Classroom Control	-0.35435
5	Vocational Subject Knowledge	0.88288
6	Teacher Interest in Subject	-1.12833
14	Safety and Safety Instruction	0.41932

Dimension III related to the adjustments necessary on the part of the vocational industrial education instructor to his professional surroundings. Items 2 and 6, "Professionalism" - Staff Relations and Teacher Interest in Subject, measure his relationship with others on the professional staff and his interest in the subject he is teaching. His interest in the student organization in vocational industrial education and the appreciation and care which he displays for the physical facilities

and equipment used in teaching are measured in item 12, Support of Student Organizations, and item 13, Use and Care of Physical Facilities and Equipment. Items 5 and 8, Vocational Subject Knowledge and Course Content, are concerned with the teacher's ability to adjust to these surroundings by his willingness to improve his knowledge and his "instructional plan" of imparting trade skills to students. Consequently, dimension III was given the title "Relationship to Educational Surroundings."

Table 24

Dimension III. "Relationship to Educational Surroundings"

Item Number	Item	Coefficient
2	"Professionalism" - Staff Relations	0.49367
5	Vocational Subject Knowledge	-0.60828
6	Teacher Interest in Subject	-0.42508
8	Course Content	0.49596
12	Support of Student Organizations	-0.50692
13	Use and Care of Physical Facilities and Equipment	-0.47472
15	Overall Performance	0.82198

Summary of Section III.

1. Hypothesis IV, concerning differences in the mean performance ratings given by groups of raters, was tested. It was found that there are significant differences at the .05 level in the mean performance ratings of school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

2. Further analysis provided evidence that certain groups of raters evaluate quite differently from other groups when comparisons are made between them; furthermore, that raters evaluate differently within groups.

3. Three dimensions were found to contribute significantly ($\alpha = .05$) to the variance among groups of raters, which accounted for 96 percent of the total variance. These three dimensions were identified as "Teaching Proficiency," "Instructor's Ability to Promote Learning," and "Relationship to Educational Surroundings."

4. The results showed that administrators, supervisors, and teacher-peers rate similarly while teachers (self-rating) and students rate differently from other groups. The results also indicate that the five groups form three clusters which are related in terms of rating similarities. One cluster consists of administrators, supervisors, and teacher-peers. Another cluster consists of teachers on a self-rating, and the third consists of students.

SECTION IV. FACTOR ANALYSIS

The discriminant analysis of section III indicated that the five groups of raters were different in the emphasis placed on teaching performance. In other words, the groups emphasized different factors of teaching performance. Therefore, factor analysis was used to determine those factors on which emphasis was placed by the five groups of raters, namely school administrators, supervisors, teacher-peers, teachers on a self-rating, and students. Computer program BMD ϕ 8M was used for this analysis.

Kerlinger (1973:659) defined factor analysis as:

. . . a method for determining the number and nature of the underlying variables among larger numbers of measures. More succinctly, it is a method for determining k underlying variables (factors) from n sets of measures, k being less than n . It may also be called a method for extracting common factor variances from sets of measures.

Sources of Data

Five separate factor analyses were computed using each group of raters. The raw scores for each performance item were used based upon the data supplied by 67 school administrators, 71 supervisors, 134 teacher-peers, 68 self-ratings, and 797 students.

In order to establish a level for the selection of items important to each factor, an absolute value of .50 or above was set a priori as the limit on the factor loadings; that is, any item loading at or above .50 was considered important to the factor.

Administrator Ratings

Seventeen items on the school administrator scale (Appendix A) produced the rotated factor matrix for 3 factors, as shown in Table 25. These factors accounted for 61 percent of the total variance.

Factor 1 did not appear to have any particular pattern in the loadings but appeared to be a measure of general teaching abilities. Since it accounted for a large portion (61 percent) of the total variance and seemed to deal with various topics, factor 1 was labeled "General Teaching Performance."

Table 25

Factor Loading After Rotations - Administrator Rating

Items	Factor 1	Factor 2	Factor 3
A	0.46582	0.34026	0.44826
B	0.49759	0.18132	0.55734
C	0.17976	0.73833	0.12963
D	0.73382	0.20100	0.24415
E	0.73139	0.05755	0.39510
F	0.15161	-0.01086	0.83913
G	0.63852	0.22615	0.20715
H	0.40241	0.38202	0.46585
I	0.36977	0.35240	0.37905
J	-0.21304	0.62154	0.48711
K	0.46412	0.53412	0.20251
L	0.36875	0.61908	0.28674
M	0.07647	0.82818	-0.16624
N	0.52883	0.07209	0.54437
O	0.45593	0.27894	0.49794
P	0.81650	0.07797	0.00192
Q	0.51296	0.55553	0.45788

Table 26

Factor 1. "General Teaching Performance"
School Administrator Rating

Item	Performance Element	Factor Loadings
D	Motivation of Students	0.73382
E	Classroom Control	0.73139
G	Teacher Interest in Education	0.63852
N	Use and Care of Physical Facilities & Equipment	0.52883
P	Placement and Follow-Up Activities	0.81650
Q	Overall Performance	0.51296

Factor 2 appeared to relate to professional development and improvement activities. Vocational industrial education instructors are strongly encouraged to participate in teacher organizations and student clubs, both for professional sharing with colleagues and improvement of teaching skills. Items J, K, and L—Communication Skills, Teaching Methods, and Evaluation Techniques—deal directly with an improvement of teaching. Factor 2 was therefore labeled "Professional Development Characteristics," as shown in Table 27.

Items B, F, and N—"Professionalism" - Staff Relations, Vocational Subject Knowledge, and Use and Care of Physical Facilities and Equipment—appeared to relate to a measure of the instructor's overall contribution to the total program in vocational education at the school where he is teaching. Item B denotes his ability to cooperate with other faculty members and to work with them to achieve the aims of the total program. The knowledge of the instructor in subject matter skills,

Table 27

Factor 2. "Professional Development Characteristics"
School Administrator Rating

Item	Performance Element	Factor Loadings
C	"Professionalism" - Educational Organizations	0.73833
J	Communication Skills	0.62154
K	Teaching Methods	0.53412
L	Evaluation Techniques	0.61908
M	Support of Student Organizations - Vocational Industrial Clubs of America	0.82818
O	Overall Performance	0.55553

item F, can also contribute significantly to the departmental objectives. The maintenance and upkeep of the physical facilities and equipment also promotes an overall attractiveness and value of the laboratory as measured in item N. Therefore, factor 3 was named "Contribution to Departmental Goals and Objectives."

Table 28

Factor 3. "Contribution to Departmental Goals and Objectives"
School Administrator Rating

Item	Performance Element	Factor Loadings
B	"Professionalism" - Staff Relations	0.55734
F	Vocational Subject Knowledge	0.83913
N	Use and Care of Physical Facilities & Equipment	0.54437

Supervisor Ratings

Seventeen items on the supervisor rating produced the rotated factor matrix for two factors, as shown in Table 29. These factors accounted for 62 percent of the total variance.

Each item on the supervisor rotation appeared to relate in some way to the professional development of vocational industrial education instructors. The items appeared to measure the professional and ethical development of instructors as they relate to professional organizations, methods and techniques of teaching, and concern for the welfare of students. In addition, these items seemed to measure related factors which show an application of trade skills in the teaching-learning environment, and the ability to convey one's knowledge to others. Consequently, factor 1 was entitled "Professional Development Characteristics," as shown in Table 30

Factor 2 appeared to measure two distinct dimensions (1) how the teacher relates to others and (2) his relationship to the subject matter he is teaching. Vocational industrial education instructors are encouraged to develop a good relationship with their colleagues and students, as well as adapt to the learning environment with respect to such factors as, knowledge of the vocational subject, class organization, and the use of physical facilities and equipment. For this reason factor 2 of the ratings by supervisors was labeled "Relationship to Educational Surroundings," as shown in Table 31.

Teacher-Peer Ratings

Seventeen items on the teacher-peer ratings produced the rotated factor matrix for two factors, as shown in Table 32 on page 85. These

Table 29
Factor Loading After Rotations - Supervisor Rating

Items	Factor 1	Factor 2
A	0.41815	0.70949
B	0.36005	0.62647
C	0.78531	0.22718
D	0.57896	0.59952
E	0.20469	0.80235
F	0.15846	0.84549
G	0.63626	0.39454
H	0.50718	0.63670
I	0.65144	0.37912
J	0.54813	0.34648
K	0.62935	0.49134
L	0.68800	0.46725
M	0.74009	0.06864
N	0.35941	0.68621
O	0.62980	0.41249
P	0.63965	0.32683
Q	0.62503	0.65454

Table 30

Factor 1. "Professional Development Characteristics"
Supervisor Rating

Item	Performance Element	Factor Loading
C	"Professionalism" - Educational Organizations	0.78531
D	Motivation of Students	0.57896
G	Teacher Interest in Education	0.63626
H	Organization	0.50718
I	Course Content	0.65144
J	Communication Skills	0.54813
K	Teaching Methods	0.62935
L	Evaluation Techniques	0.68800
M	Support of Student Organizations - VICA	0.74009
O	Safety and Safety Instruction	0.62980
P	Placement and Follow-Up Activities	0.63965
Q	Overall Performance	0.62503

Table 31

Factor 2. "Relationship to Educational Surroundings"
Supervisor Rating

Item	Performance Element	Factor Loading
A	"Professionalism" - Personal Characteristics	0.70949
B	"Professionalism" - Staff Relations	0.62647
D	Motivation of Students	0.59952
E	Classroom Control	0.80235
F	Vocational Subject Knowledge	0.84549
H	Organization	0.63670
N	Use and Care of Physical Facilities & Equipment	0.68621
Q	Overall Performance	0.65454

Table 32
Factor Loading After Rotations - Teacher-Peer Rating

Items	Factor 1	Factor 2
A	0.65942	0.37546
B	0.65044	0.34642
C	0.41345	0.52825
D	0.59265	0.61940
E	0.65974	0.36458
F	0.71109	0.19345
G	0.61645	0.46844
H	0.64117	0.42241
I	0.56713	0.50496
J	0.30682	0.70021
K	0.40051	0.63060
L	0.48086	0.60591
M	0.03085	0.83006
N	0.73888	0.26297
O	0.80649	0.12720
P	0.40572	0.65746
Q	0.75061	0.41770

factors accounted for 60 percent of the total variance.

Factor 1 seemed to deal almost exclusively with teaching methods used in the classroom. Item B, dealing with "Professionalism" - Staff Relations, appeared to be the one exception. Factor 1 of the teacher-peer ratings, however, matched very closely factor 1 on the administrator rating (Table 26) and therefore was appropriately labeled "General Teaching Performance."

Table 33

Factor 1. "General Teaching Performance"
Teacher-Peer Rating

Item	Performance Element	Factor Loading
A	"Professionalism" - Personal Characteristics	0.65942
B	"Professionalism" - Staff Relations	0.65044
D	Motivation of Students	0.59265
E	Classroom Control	0.65974
F	Vocational Subject Knowledge	0.71109
G	Interest in Education	0.61645
H	Organization	0.64117
I	Course Content	0.56713
N	Use and Care of Physical Facilities & Equipment	0.73888
O	Safety and Safety Instruction	0.80649
Q	Overall Performance	0.75061

Items on the teacher-peer rating appeared to closely match the items of factor 2 on the administrator rating (Table 27) dealing with "Professional Development Characteristics." Consequently, it was named accordingly.

Table 34

Factor 2. "Professional Development Characteristics"
Teacher-Peer Rating

Item	Performance Element	Factor Loading
C	"Professionalism" - Educational Organizations	0.52825
D	Motivation of Students	0.61940
I	Course Content	0.50496
J	Communication Skills	0.70021
K	Teaching Methods	0.63060
L	Evaluation Techniques	0.60591
M	Support of Student Organizations - VICA	0.83006
P	Placement and Follow-Up Activities	0.65746

Self-Ratings

Seventeen items on the self-ratings produced the rotated factor matrix for four factors, as shown in Table 35. These factors accounted for 63 percent of the total variance.

Items on factor 1 of the self-rating appeared to closely match that of factor 2 on the supervisor rating dealing with "Relationship to Educational Surroundings" (Table 31). This same title was given to factor 1 on the self-rating inasmuch as the items were almost identical. It appears in Table 36.

Factor 2 was best described as professional motivation inasmuch as the items appeared to be measuring an interest in cooperating with other staff members, interest in professional organizations, and the desire to improve instructional organization and methods. It therefore was appropriately named "Professional Motivation," as shown in Table 37.

Table 35

Factor Loading After Rotations - Self-Rating

Items	Factor 1	Factor 2	Factor 3	Factor 4
A	0.74277	-0.29985	0.14302	0.03540
B	0.62242	-0.55164	0.09801	0.09805
C	0.29242	-0.67576	0.21482	0.13866
D	0.82714	0.11533	0.03795	0.08462
E	0.59467	-0.36152	0.15456	0.03680
F	0.57353	0.00715	0.40113	0.13636
G	0.32329	0.01098	0.60849	0.20574
H	-0.01138	-0.53140	0.61658	-0.11602
I	0.11925	-0.35930	0.55919	0.24406
J	0.50407	-0.48477	0.16984	0.11597
K	0.06135	-0.79129	0.11652	0.20913
L	0.66132	-0.13507	0.34542	0.12143
M	0.12309	-0.25200	0.32642	0.66136
N	0.32624	-0.15836	0.80482	-0.10726
O	0.15217	-0.16289	0.63300	0.30265
P	0.13130	-0.09783	0.02134	0.86619
Q	0.63769	-0.36648	0.30816	0.19896

Table 36

Factor 1. "Relationship to Educational Surroundings"
Self-Rating

Item	Performance Element	Factor Loading
A	"Professionalism" - Personal Characteristics	0.74277
B	"Professionalism" - Staff Relations	0.62242
D	Motivation of Students	0.82714
E	Classroom Control	0.59467
F	Vocational Subject Knowledge	0.57353
J	Communication Skills	0.50407
L	Evaluation Techniques	0.66132
Q	Overall Performance	0.63769

Table 37

Factor 2. "Professional Motivation"
Self-Rating

Item	Performance Element	Factor Loading
B	"Professionalism" - Staff Relations	-0.55164
C	"Professionalism" - Educational Organizations	-0.67576
H	Organization	-0.53140
K	Teaching Methods	-0.79129

Factor 3 seemed to measure those qualities dealing with instructional organization. Items H, I, and N—Organization, Course Content, and Use and Care of Physical Facilities and Equipment—each relate directly to this concept. Since G, Interest in Teaching, and O, Safety

and Safety Instruction, did not have loadings which were as high as the other items, they were considered to have contributed a minor part to this factor. Likewise, item O definitely implies instructional organization since a primary point stressed to students in safety instruction is good housekeeping and organization of the laboratory. Factor 3 was therefore called "Instructional Organization."

Table 38
Factor 3. "Instructional Organization"
Self-Rating

Item	Performance Element	Factor Loading
G	Interest in Teaching	0.60849
H	Organization	0.61658
I	Course Content	0.55919
N	Use and Care of Physical Facilities & Equipment	0.80482
O	Safety and Safety Instruction	0.63300

Factor 4 was apparently concerned with the instructor's interest in students. Item M, Support of Student Organizations, appeared to relate to a desire on the part of the instructor to develop leadership qualities in students. Item P, Placement and Follow-Up Activities, is also concerned with the development of students, as it evaluates the teacher's assistance in helping students to find employment upon termination of their training. This item also evaluates the teacher's assessment of students' performances in these employment positions, in order to upgrade instruction given to others. Factor 4 was entitled "Interest in Student Development."

Table 39

Factor 4. "Interest in Student Development"
Self-Rating

Item	Performance Element	Factor Loading
M	Support of Student Organizations - Vocational Industrial Clubs of America	0.66136
P	Placement and Follow-Up Activities	0.86619

Student Ratings

Sixteen items on the student rating produced the following rotated factor matrix for one factor, as shown in Table 40. These factors accounted for 44 percent of the total variance.

Since only one factor was generated on the student rating, it was considered to be a pure factor. Only one item, item M—Support of Student Organizations—does not meet the established level of .50. Since all other items appeared to measure general teaching performance, this factor was labeled "General Teaching Performance."

Summary of Section IV.

Factor analysis was used to identify those dimensions which were emphasized by each of the groups of raters in order to more fully understand the relationship of these factors to teaching performance.

1. Administrators considered "General Teaching Performance," "Professional Development Characteristics," and "Contribution to Departmental Goals and Objectives" as important factors in assessing the classroom teaching performance of vocational industrial education instructors.

Table 40
Factor Loading After Rotations - Student Rating

Items	Factor 1
A	0.67719
B	0.66198
C	0.70084
D	0.66148
E	0.71610
F	0.67071
G	0.66709
H	0.65971
I	0.69421
J	0.66312
K	0.58516
L	0.67958
M	0.49570
N	0.65839
O	0.64864
P	0.77060

2. Supervisors emphasized "Professional Development Characteristics" and "Relationship to Educational Surroundings" as factors important to teaching performance.

3. Teacher-peers stressed "General Teaching Performance" and "Professional Development Characteristics" as factors important to teaching effectiveness.

4. Teachers, using self-ratings, emphasized four factors—"Relationship to Educational Surroundings," "Professional Motivation," "Instructional Organization," and "Interest in Student Development"—as important to teaching effectiveness.

5. Students identified only one factor, "General Teaching Performance," as important to the evaluation of classroom teaching effectiveness.

Chapter 5

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

INTRODUCTION

This study focused on the effects of trade experience, teaching experience, and professional education upon the classroom teaching performance of vocational industrial education instructors. Other writers (Venn, 1964; Barlow, 1967; and Thompson, 1973) have stressed the need for research relating to the effects of these variables and for implementation of more effective methods of assessing the classroom teaching performance of vocational industrial education instructors.

This chapter attempts to summarize the procedures used in the study, draw conclusions about the findings of the study, assess the implications for further research, and suggest ways for implementation of the results.

STATEMENT OF THE PROBLEM AND METHODOLOGY USED IN THE STUDY

The purpose of this study was to determine the effects of years of trade experience, years of teaching experience, and professional education on the classroom teaching performance of public secondary school vocational industrial education instructors. The study was designed to investigate the following specific problems:

1. What effect does trade experience have upon the classroom

teaching performance of vocational industrial education instructors?

2. What effect does teaching experience have upon the classroom teaching performance of vocational industrial education instructors?

3. What effect do levels of professional education have upon the classroom teaching performance of vocational industrial education instructors? A related question was concerned with the relationship of vocational industrial education courses and professional education courses taken by instructors.

4. What are the interaction effects of the variables of trade experience, teaching experience, and professional education?

5. What differences are there in the ratings given by the various groups of raters, specifically, school administrators, supervisors, teacher-peers, teachers on a self-rating, and students? An additional problem was the determination of those factors of teaching performance emphasized by each of the five groups.

The study used a survey approach to assess the the classroom teaching performance of vocational industrial education instructors. Ratings were obtained from school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

Selected vocational industrial education instructors in Virginia public secondary schools and vocational centers were stratified into eight sub-groups based upon low and high levels of trade experience, teaching experience, and professional education. A sample of 72 instructors was drawn from the population by the random selection of 9 instructors from each of the 8 sub-groups.

Performance rating instruments were developed for the study

using the advice of a panel of seven experts. Four ratings were developed: one for use by supervisors and administrators, and one each for teacher-peers, teachers using a self-rating, and students. These instruments were validated by a panel of experts and were subjected to a pilot test which utilized the test-retest method to establish reliability.

Data on the classroom teaching performance of the instructors were collected using a mail survey. Classroom teaching performance evaluations for each instructor were mailed to the following: (1) one school administrator, (2) one supervisor, (3) two teacher-peers, (4) each instructor (self-rating), and (5) one class of students. A total of 432 ratings were mailed. Follow-up procedures were conducted which resulted in a return of 406, or 94 percent of all ratings.

Data were key-punched and computer analyzed using four statistical tools: multivariate analysis of variance (MANOVA), chi-square, stepwise discriminant analysis, and factor analysis.

This study was conducted within the confines of the following limitations:

1. Only those vocational industrial education instructors employed on a full-time basis in the public secondary schools and vocational centers in Virginia were included in the study.

2. Groups of instructors eliminated from the study included those engaged in any phase of health occupations instruction, teachers of disadvantaged or handicapped students in vocational industrial education programs, and coordinators of Industrial Cooperative Training.

3. No attempt was made to measure and assess the performance

of vocational industrial education instructors in any school activities which were not directly related to classroom teaching performance.

4. No assessment was made of other possible influences upon classroom teaching performance, such as the quality of past trade experience represented by each instructor or other types of teaching experience.

SUMMARY OF THE STUDY

Four statistical tools were used in the analysis of this study to test the following hypotheses:

Hypothesis I. Those instructors having low trade experience will receive lower classroom teaching performance ratings than those instructors having high trade experience.

Hypothesis II. Those instructors having low teaching experience will receive lower classroom teaching performance ratings than those instructors having high teaching experience.

Hypothesis III. Those instructors having low levels of professional education will receive lower classroom teaching performance ratings than those instructors having high levels of professional education.

Hypothesis IV. There will be significant differences in the mean performance ratings of instructors as given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

Summary of the Findings in Section I.

As a result of the use of MANOVA to test for significant differences in the mean performance ratings of those instructors with low and

high levels of trade experience, teaching experience, and professional education, Hypotheses I, II, and III were not retained. It was concluded that there are no differences ($\alpha = .05$) in the mean performance ratings of vocational industrial education instructors as rated by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students, when analyzed together.

Further analysis of variance (ANOVA) was used to test for differences in the mean ratings of vocational industrial education instructors on single variable comparisons. The mean performance ratings for those instructors having low and high trade experience were found to be significantly different ($p < .05$) when rated by school administrators.

When rated by supervisors, the interaction effects of trade experience and hours of education caused the mean performance ratings of vocational industrial education instructors to be significantly different ($\alpha = .05$).

The mean performance ratings for those instructors having low trade experience and high trade experience were found to be significantly different ($p < .05$) when rated by instructors on a self-rating.

The difference in the mean performance ratings for those instructors with low levels of professional education and those instructors with high levels of professional education were statistically significant (.05 level) when rated by vocational industrial education instructors on a self-rating.

Summary of the Findings in Section II.

It seemed highly likely that there would be a relationship between professional education and vocational industrial education levels

attained by vocational industrial education instructors.

It was conjectured that those instructors with high hours of professional education would also have high hours in vocational industrial education, since instructors are required to complete 12 semester hours of credit every 5 years (1973b:42) with most of this course work taken in vocational industrial education.

To test this relationship, frequency counts were made of those instructors with high and low levels of professional education and those with high and low levels of vocational industrial education. The chi-square test was used to examine this relationship. As a result of this analysis, it was concluded that there was a significant ($\alpha = .05$) relationship between these two measures.

Summary of the Findings in Section III.

Stepwise discriminant analysis was used to determine if there were differences between the mean group ratings of the five groups of raters and to determine those dimensions which separated these groups. On the basis of this analysis, it was concluded that there are significant ($p < .05$) differences in the mean performance ratings of the five groups of raters. Consequently, Hypothesis IV was retained.

Furthermore, an F-matrix comparison of group means indicated that there were no significant ($\alpha = .05$) differences in the mean performance ratings of school administrators and supervisors or administrators and teacher-peers. The mean ratings were significantly ($\alpha = .05$) different for teachers (self-rating) and administrators; supervisors and teacher-peers; teacher-peers and teachers (self-rating); and

administrators and students. Group mean ratings were also significantly ($\alpha = .05$) different for supervisors and students; teacher-peers and students.

Three dimensions were found to contribute significantly ($\alpha = .05$) to the group mean differences. These dimensions were identified and titled in a manner which appeared to the researcher as consistent with the items they contained. The three factors were called "Teaching Proficiency," "Instructor's Ability to Promote Learning," and "Relationship to Educational Surroundings."

Summary of the Findings in Section IV.

Factor analysis was used to identify those factors which were emphasized by each of the rating groups in evaluating classroom teaching performance.

Administrators stressed the importance of three factors which were identified as "General Teaching Performance," "Professional Development Characteristics," and "Contribution to Departmental Goals and Objectives."

Supervisors emphasized "Professional Development Characteristics" and "Relationship to Educational Surroundings."

Teacher-peers stressed "General Teaching Performance" and "Professional Development Characteristics" as factors important to teaching effectiveness.

Teachers, using self-ratings, emphasized four factors. Those factors were identified as "Relationship to Educational Surroundings," "Professional Motivation," "Instructional Organization," and "Interest in Student Development."

Students identified only one factor important to teacher performance which was identified as "General Teaching Performance."

CONCLUSIONS OF THE STUDY

Based upon the findings of this study and upon the appropriateness of the instruments designed for this study to effectively measure the classroom teaching performance of vocational industrial education instructors, the following conclusions are drawn:

1. Classroom teaching performance of vocational industrial education instructors is not significantly ($\alpha = .05$) influenced by varying levels of trade experience, teaching experience, and professional education when ratings given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students are analyzed together.

2. Increased trade experience does significantly ($p < .05$) affect classroom teaching performance of vocational industrial education instructors when rated by school administrators.

3. Classroom teaching performance of vocational industrial education instructors is significantly ($\alpha = .05$) influenced by the interaction effects of trade experience and hours of education when rated by supervisors.

4. Increased trade experience does significantly ($\alpha = .05$) influence the classroom teaching performance of vocational industrial education instructors when rated by instructors on a self-rating.

5. Classroom teaching performance of vocational industrial education instructors is significantly ($\alpha = .05$) affected by levels of

professional education when rated by instructors on a self-rating.

6. Instructors with high levels of professional education also have high levels of vocational industrial education.

7. There are no significant ($\alpha = .05$) differences in the performance ratings given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students. Therefore, all five groups should be used in order to adequately assess the classroom teaching performance of vocational industrial education instructors.

8. The dimensions of "Teaching Proficiency," "Instructor's Ability to Promote Learning," and "Relationship to Educational Surroundings" separated the performance evaluations of the five rating groups. If these dimensions are used as a base for the classroom teaching performance evaluation of vocational industrial education instructors, data from the evaluations of the five groups should be treated separately.

9. Administrators, supervisors, and teacher-peers rate similarly when evaluating the classroom teaching performance of vocational industrial education instructors. Teachers (self-rating) and students rate differently from other groups and from each other.

10. The factors of "General Teaching Performance" and "Professional Development Characteristics" would serve as an adequate base upon which to develop a teaching performance evaluation for use by administrators and teacher-peers. "General Teaching Performance" would serve as an adequate base upon which to build a performance rating instrument for use by school administrators, teacher-peers, and students.

RELATIONSHIP OF THIS STUDY TO OTHER RELATED RESEARCH

This research supports the study of Pfahl (1971:1-94) who concluded that the amount of formal education a teacher has completed affects his classroom teaching performance when rated by certain groups. It also supports the work of Musgrove (1968:1-100) who concluded the following:

1. There was a positive relationship between occupational experience and teacher effectiveness when measured on a teacher self-rating.
2. There were no relationships between occupational experience and teacher effectiveness when rated by supervisors and students.
3. When rated by students and teachers on a self-rating, there were no significant relationships between the amount of teaching experience and teacher effectiveness.
4. The supervisor ratings indicated no relationship between the amount of college training and vocational industrial education teacher effectiveness.

Further, this study tended to refute the finding by Musgrove (1968:1-100) of a positive relationship between the amount of teaching experience and teacher effectiveness when rated by supervisors.

No differences ($\alpha = .05$) were found in the mean performance ratings of supervisors for those instructors with low and high teaching experience.

It is difficult to draw conclusions of either support or refutation of the research by Croom (1972:1-152) in which it was concluded that professional education was not found to contribute significantly

to the classroom teaching performance of vocational industrial education instructors. Croom's study was based primarily upon instructors who had completed college.

GENERAL IMPLICATIONS OF THE STUDY

Extrapolating beyond the results of this study, it is important to note the possible causes which lead to the foregoing conclusions. The reader is cautioned that other intervening variables may also have caused or contributed to the results obtained in this study, in addition to those mentioned below.

This section is presented in four parts, reviewing Sections I, II, III, and IV of Chapter 4.

Implications of Section I.

Multivariate analysis of variance was used to test differences in teaching performance among instructors having different levels of trade experience, teaching experience, and professional education, as rated by the five groups of raters.

In assessing the results of these ratings, it is important to note the probable causes which lead to the differences in mean ratings among groups of raters.

When rated by administrators, the differences in the means for those instructors with low and high trade experience were statistically significant ($\alpha = .05$). However, supervisors did not rate instructors with low trade experience significantly different ($\alpha = .05$) from those with high trade experience. Several factors may account for these differences.

The effects of trade experience upon the classroom teaching performance of vocational industrial education instructors has been stressed to the point that administrators would possibly tend to believe it without question. This "halo" effect may have influenced the ratings given to those instructors with high trade experience, causing them to receive higher scores.

It might be expected that administrators could equate the positive effects of an extensive background of trade experience and effective classroom performance. This would increase the natural tendency to judge those instructors rated high in trade experience more positively than those who were classed as low in trade experience.

Supervisors, on the other hand, may not rate instructors with low trade experience differently from those with high trade experience because they consider other factors to be equally as important. While they may value the positive effects of increased trade experience with its influence on classroom teaching performance, supervisors are often not as close to the day-to-day activities of instructors and consider the other factors of teaching experience and professional education to be equally as important. This may account also for the interaction effects of trade experience and professional education. Supervisors, when rating the classroom teaching performance of vocational industrial education instructors, probably consider the importance of numerous related factors. For example, supervisors encourage instructors to enroll in professional education courses and possibly consider completion of such courses equally as important as trade experience.

Vocational industrial education instructors, using a self-rating, perhaps rated themselves differently with respect to low and high trade experience because they related trade experience with the subject matter being taught. Consequently, those with higher trade experience may feel more confident with the information they are trying to convey to the students than those who have less experience.

Mean ratings as given by instructors on a self-rating were different for low and high professional education level instructors. It is a possibility that those instructors with higher levels of education possess a greater degree of confidence in their teaching ability because of the influence of their associations with peers at class sessions and the subsequent exchanges of information and experiences which result from these classes.

The increase in levels of professional education most often coincided with increased teaching experience and it is interesting to observe that differences in the mean performance ratings of low and high teaching experience instructors were not statistically significant ($\alpha = .05$). This obvious disparity might lead one to conclude that credit hours earned in professional education are a more influential factor upon classroom teaching performance than years of teaching experience.

An increase in the level of professional education cannot be distinctly separated from increased teaching experience. Vocational industrial education instructors who possess increased teaching experience must, by State Department of Education regulations (1973b:42), attain increased levels of professional education.

Implications of Section II.

The chi-square test was used to determine the relationship between professional education levels and vocational industrial education levels of instructors. Results showed that there was a relationship in the levels of professional education and vocational industrial education of instructors.

This relationship would imply that either the total hours earned in professional education courses or hours earned in vocational industrial education courses could be used to assess the probable classroom teaching performance of vocational industrial education instructors when rated by certain groups of raters. Because of the emphasis placed on acquiring these courses in their subject field, however, most instructors enroll in classes dealing with the pedagogy of vocational-technical education, vocational education, or vocational industrial education.

Implications of Section III.

Stepwise discriminant analysis was used to test the differences in the mean performance ratings of school administrators, supervisors, teacher-peers, teachers on a self-rating, and students. It was also used to name the dimensions which separated these groups.

This analysis indicated that there were differences in the mean group ratings of the five groups. There are several reasons which may account for this discrimination.

Various groups, when evaluating teacher performance, look for different factors on which to judge the effectiveness of the individual

instructor. The school administrator, for example, may be concerned with the manner in which the instructor handles individual discipline problems which arise, while students give a higher performance rating to those instructors who possess such qualities as fairness and humor.

Individual groups of raters could possess different levels of evaluative abilities. School administrators and supervisors are usually trained in the skills of teacher evaluation, or at least they often possess more experience in this area. Teacher-peers, teachers, and students may not have had this depth of experience. Consequently, varying levels of skill in evaluation could produce different group mean ratings. This is not to imply, however, that the ratings of teachers, teacher-peers, and students are inferior or superior to the evaluations of persons trained in teacher performance assessment. It is concluded only that the level of evaluative ability may account for differences in the ratings.

Related to the preceding discussion is the possible influence of other variables such as educational attainment of the groups of raters, motivation, and attitudes toward the process of evaluation. Each individual who contributes his evaluation of an instructor may, indeed, put some of his own individual personality and biases into the evaluation. One might expect, for example, that the attitude of an instructor toward a self-rating would be different from that of an administrator who provides an evaluation of the instructor. It might also be expected that supervisors would be more conscientious in evaluating teaching performance than would teachers on a self-rating, possibly because they would tend to be less biased in their analysis.

It was interesting to note the clustering of groups on the three dimensions. Dimensions I, II, and III did not discriminate administrators, supervisors, and teacher-peers. The results did show that administrators rated similarly to supervisors and to teacher-peers. The function of the former two groups is administration. Consequently, one might expect that there would be a relatively small amount of variance between them. Evidently, however, teacher-peers also cast themselves in an administrative role when rating other instructors.

Implications of Section IV.

Factor analysis was used to name the factors emphasized by each of the five groups.

Each of the three factors identified on the school administrator ratings—"General Teaching Performance," "Professional Development Characteristics," and "Contribution to Departmental Goals and Objectives"—are factors which are important to the overall success of the goals and objectives in each school. As a result, it appears logical that administrators would place considerable emphasis on these factors in evaluating classroom teaching performance.

Supervisors identified "Professional Development Characteristics" and "Relationship to Educational Surroundings" as factors of importance in assessing teacher performance. It would be expected that supervisors would rate similarly with administrators on this factor inasmuch as they are also judging the instructor from an administrative viewpoint. Supervisors are also concerned, and have a major responsibility for, such facets of teaching performance as classroom organization, the use and care of facilities and equipment, and ability of the teacher to

motivate students. Consequently, supervisors would be expected to emphasize the factor of "Relationship to Educational Surroundings."

Teacher-peers stressed the importance of "Professional Development Characteristics" and "General Teaching Performance." It would appear that teacher-peers failed to stress any one single factor, as those two inclusive factors appear to rate the overall ability of an instructor. One would expect teacher-peers to rate the elements of instructional methods and laboratory organization as being more important to teaching performance, inasmuch as teacher-peers are not as concerned with performance from an administrative standpoint.

Teachers, when making an evaluation of their own teaching performance, consider several factors as important to successful instruction. It appears that they feel a need to relate to both students and faculty, as well as give consideration to the importance of other physical factors entitled "Educational Surroundings." Vocational industrial education instructors receive considerable professional training in education classes and in-service training sessions in the aforementioned areas, and this appears to be reflected in their performance ratings. With regard to the factor of "Educational Surroundings," instructors are encouraged to participate in educational organizations and to seek every opportunity to improve upon their instructional organization and teaching methods. Consequently, this may have been reflected in the teacher-peer ratings.

One of the important features of vocational industrial education is the use of Vocational Industrial Clubs of America (VICA) activities to promote the development of democratic ideals and interest in students.

At the same time increased emphasis is being placed on the instructor's participation in securing job placements for students. Again, there appeared to be a relationship between the emphasis on VICA activities, placement and follow-up activities, and instructors' ratings in the category of "Interest in Student Development."

Students obviously do not consider any one factor as most important in assessing classroom teaching performance. This finding could be attributed to their lack of knowledge concerning the importance of other factors such as relationship to others on the faculty or their lack of ability to fully judge such factors. They may also have failed to place greater emphasis on one particular factor because they possess a greater degree of objectivity than either of the remaining groups or because they had no prior knowledge of the instructor and his background.

IMPLICATIONS FOR FURTHER RESEARCH

Based on the findings and procedures of this research, the following implications may be deducted for future study:

1. This study should be replicated to add validity to the research procedure and methodology.
2. A research effort should be directed specifically at other influences, such as the quality and type of trade experiences, or "teaching" experience gained in the military, to determine the effects on the classroom teaching performance of vocational industrial education instructors. Included for consideration could be a study of the levels of academic achievement attained in professional education classes.
3. A study should be aimed at a comparison of the effects of

credit hours earned in vocational industrial education as opposed to the effects of hours of credit earned in other college level courses, either in non-education courses, education courses, or both.

4. The concept of classroom teaching performance should be expanded to include other factors of the total performance of vocational industrial education instructors within the school such as extra-curricular activities and support of athletic events. A study should be made of the effects of the variables used in this study upon this concept of performance.

5. The implications of this study suggest that future studies might deal with each of the performance rating factors emphasized by the five rating groups to assess how they are affected by the variables of trade experience, teaching experience, and professional education.

6. This study made no attempt to identify the variable or variables which had the greater effect upon classroom teaching performance of vocational industrial education instructors. It is recommended that future studies deal with this question.

7. The study should be replicated using a sample of instructors drawn from all geographic locations in the United States.

8. Future studies should be concerned with an assessment of the changes in the classroom teaching performance of those instructors who are just beginning their teaching careers and their performance after having acquired additional levels of education and teaching experience.

9. It is recommended that future research studies deal with further interpretation and assessment of classroom teaching performance of vocational industrial education instructors.

PRACTICAL IMPLICATIONS OF THE STUDY

The reader is cautioned to consider potential intervening variables in making application of the results. Extrapolating beyond the results, some potential implications are:

1. Results of this study should be made available to those institutions where undergraduate and graduate degree programs are available in vocational industrial education.

2. This study should be disseminated to the State Department of Education for consideration in assessing the certification requirements of vocational industrial education instructors.

3. Results of this study should be made available to local school divisions for consideration in employment of vocational industrial education instructors. Implications for consideration may include one or more of the following:

Administrators would seem to prefer individuals with more than five years of trade experience.

Supervisors tend to prefer vocational industrial education instructors with not only high trade experience, but also with high education.

Inasmuch as high trade experience instructors considered themselves better teachers, implications extrapolated beyond the results of this study would infer that increased levels of trade experience lead to increased levels of confidence in the self-concepts possessed by vocational industrial education instructors.

Teachers with high professional education considered themselves

better instructors, therefore, extrapolating beyond the scope of this study it could be concluded that the self-concepts of high education instructors are better than those of low education instructors.

4. Results of this study should be made available to local school divisions for possible consideration in establishing salary schedules based upon recognition of trade experience in lieu of teaching experience for vocational industrial education instructors.

5. Performance rating instruments designed for this study should be further developed and tested for possible widespread use in evaluating the classroom teaching performance of vocational industrial education instructors.

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APPENDIXES

APPENDIX A.

Performance Rating Instruments

(Not to be reproduced)

SUPERVISOR AND ADMINISTRATOR RATING OF THE TRADE AND INDUSTRIAL
EDUCATION TEACHER'S CLASSROOM PERFORMANCE

by: Ned K. Swartz

Directions:

Operationally defined, classroom teaching performance involves those activities relating to or occurring within the classroom or laboratory setting over which the trade and industrial education teacher has control, direction, supervision, and responsibility. On this basis this instrument was constructed using sixteen performance factors considered to be important for effective classroom teaching and an overall rating. In each category statements or questions have been included to direct your appraisal within that item.

Please rate _____ by placing a circle around the number which most nearly reflects your opinions and observations of this teacher, using the scale of 1 (lowest rating) to 5 (highest rating) as provided. It is most important that you evaluate each of the factors A-Q.

Please return your completed instrument in the stamped, self-addressed envelope by _____, 1974.

Very poor
Below average
Average
Above average
Excellent

1 2 3 4 5 A. "PROFESSIONALISM" - PERSONAL CHARACTERISTICS

Does this instructor maintain those standards of conduct (including dress) and morality which are expected of all professional staff members? Does he possess those personal characteristics which you feel to be conducive to helping students of this age group learn?

1 2 3 4 5 B. "PROFESSIONALISM" - STAFF RELATIONS

Is he cooperative with you and other school administrators? With other staff members? Is he respected by others on the staff? Does the performance of this instructor support the overall educational objective of working as a team to educate young people?

1 2 3 4 5 C. "PROFESSIONALISM" - EDUCATIONAL ORGANIZATIONS

Is he active in those organizations which are dedicated to the enrichment of educational opportunities, such as local, state, and national education associations; or community service organizations? To the best of your knowledge, does he use published materials (such as research reports and professional journals) and does he participate in educational seminars and meetings to increase his level of classroom proficiency?

APPENDIX A. (Continued)

SA-2

Very poor
 Below average
 Average
 Above Average
 Excellent

1 2 3 4 5 D. MOTIVATION OF STUDENTS

Does this instructor encourage creativity and individualism among his students? Does he encourage students to perform to the best of their abilities in every task which they undertake? Are students' opinions and ideas sought and used in accomplishing tasks and solving problems in the classroom?

1 2 3 4 5 E. CLASSROOM CONTROL

Does this instructor maintain control of the classroom environment, providing for a situation where there is mutual respect between students and teacher? Does he treat students fairly?

1 2 3 4 5 F. VOCATIONAL SUBJECT KNOWLEDGE

Does this instructor possess a high degree of skill in his trade area? Does he keep abreast of new developments in this trade by periodically attending in-service and college classes designed to upgrade his skills and teaching methods? Is he proficient in the use of the tools and equipment employed for student instruction?

1 2 3 4 5 G. TEACHER INTEREST IN EDUCATION

Is this instructor enthusiastic about teaching and working with young people? Is he interested in this vocational subject and is he dedicated to the development of all young people to their fullest possible potential?

1 2 3 4 5 H. ORGANIZATION

Does this instructor prepare a course outline, listing all activities, with expected outcomes? Are all facets of his instruction based upon this outline? Are classroom-laboratory activities arranged into a logical pattern on a day-to-day basis? Is classroom time used wisely?

1 2 3 4 5 I. COURSE CONTENT

Is a trade advisory committee used as a means of revising and upgrading the skills taught and information provided to students? Is the course content relevant to student needs, reflecting those skills necessary for successful employment in this particular trade? Is the overall course planned to provide a clear line of progression from one segment to another, avoiding repetition of previously studied material?

1 2 3 4 5 J. COMMUNICATION SKILLS

Does this instructor possess the skills needed to express himself, both orally and in writing, clearly and precisely using acceptable grammar and sentence structure?

APPENDIX A. (Continued)

SA-3

Very poor
Below average
Average
Above average
Excellent

1 2 3 4 5 K. TEACHING METHODS

Does he use a variety of teaching methods such as lectures, lecture-demonstrations, films, outside speakers, field trips, bulletin board displays and wall charts? Is he willing to evaluate new teaching techniques?

1 2 3 4 5 L. EVALUATION TECHNIQUES

Are students graded fairly? Are they tested on the basis of stated objectives, using a variety of performance devices such as written and oral tests, actual performance tests, projects and term papers? Does this instructor constantly seek to improve his evaluative skills? Are students given the opportunity to participate in their own evaluation and analysis of the evaluative outcomes?

1 2 3 4 5 M. SUPPORT OF STUDENT ORGANIZATIONS - V. I. C. A.

Does this instructor maintain or support an active Vocational Industrial Clubs of America chapter? Is he active in the district, state and national organizations of VICA through his work in promoting their activities and programs? Are classroom activities directed around the aims and objectives of VICA?

1 2 3 4 5 N. USE AND CARE OF PHYSICAL FACILITIES AND EQUIPMENT

Does this instructor attempt to make the best possible use of available classrooms and equipment? Does he properly maintain power and hand tools? Are the classrooms and laboratories clean, neat and organized?

1 2 3 4 5 O. SAFETY AND SAFETY INSTRUCTION

Are students given instruction on the proper use and care of hand and power equipment? Are safety charts used in the classroom or laboratory? Has all power equipment been color coded and equipped with the proper safety shields? Are students encouraged to practice safe working habits? Does he comply with state safety laws, such as the required use of eye protection devices, and does he follow other recommended safety practices?

1 2 3 4 5 P. PLACEMENT AND FOLLOW-UP ACTIVITIES

Does he assist students completing his courses in finding appropriate employment, either through his cooperation with the guidance department or by individual initiative? Does he make follow-up contacts with former students, either through individual action or by providing assistance to guidance counselors?

1 2 3 4 5 Q. OVERALL PERFORMANCE

How would you describe the overall classroom and laboratory teaching performance of this vocational instructor?

APPENDIX A. (Continued)

(Not to be reproduced)

TEACHER PEER RATING OF THE TRADE AND INDUSTRIAL EDUCATION
TEACHER'S CLASSROOM PERFORMANCE

by: Ned K. Swartz

Directions:

Operationally defined, classroom teaching performance involves those activities relating to or occurring within the classroom or laboratory setting over which the trade and industrial education teacher has control, direction, supervision and responsibility. On this basis this instrument was constructed using sixteen performance factors considered to be important for effective classroom teaching and an overall rating. In each category statements or questions have been included to direct your appraisal within that item.

Please rate _____ by placing a circle around the number which most nearly reflects your opinions and observations of this teacher, using the scale of 1 (lowest rating) to 5 (highest rating) as provided. It is most important that you evaluate each of the factors A-Q.

Please return your completed instrument in the stamped, self-addressed envelope by _____, 1974.

Very poor					
Below average	1	2	3	4	5
Average					
Above average					
Excellent					

1 2 3 4 5 A. "PROFESSIONALISM" - PERSONAL CHARACTERISTICS

Does this instructor maintain those standards of conduct (including dress) and morality which are expected of all professional staff members? Does he possess those personal characteristics which you feel to be conducive to helping students of this age group learn?

1 2 3 4 5 B. "PROFESSIONALISM" - STAFF RELATIONS

Is he cooperative with the administrative and instructional staffs? Is he respected by others in the teaching profession? Is he dedicated to "carrying his share" when assigned tasks and responsibilities with others on the staff? Is he willing to help other teachers? Is he willing to accept help and appropriate suggestions from other teachers?

1 2 3 4 5 C. "PROFESSIONALISM" - EDUCATIONAL ORGANIZATIONS

Is he active in professional and community organizations? Does he participate in professional meetings, seminars, and in-service activities to improve his instructional proficiency?

APPENDIX A. (Continued)

Very poor
Below average
Average
Above average
Excellent

TPR-2

1 2 3 4 5 D. MOTIVATION OF STUDENTS

Does this instructor encourage creativity and individualism among his students? Does he encourage students to perform to the best of their abilities in every task which they undertake? Are students' opinions and ideas sought and used in accomplishing tasks and solving problems in the classroom?

1 2 3 4 5 E. CLASSROOM CONTROL

Does this instructor maintain control of his classroom environment, providing for a situation of mutual respect between students and teacher? Does he treat students fairly?

1 2 3 4 5 F. VOCATIONAL SUBJECT KNOWLEDGE

Does this instructor possess a high degree of skill in his trade area? Does he keep abreast of new developments in this trade by periodically attending in-service and college classes designed to upgrade his skills and teaching methods? Is he proficient in the use of the tools and equipment employed for student instruction?

1 2 3 4 5 G. INTEREST IN EDUCATION

Is he enthusiastic about teaching as a profession? Does he like to work with young people? Is he interested in this vocational subject and in preparing young people to enter the world of work?

1 2 3 4 5 H. ORGANIZATION

Does this instructor prepare a course outline which lists all classroom and laboratory activities with expected behavioral outcomes? Are classroom-laboratory activities arranged into a logical pattern on a day-to-day basis? Is classroom time used wisely? Is the organization of his instructional activities supportive of over-all departmental objectives?

1 2 3 4 5 I. COURSE CONTENT

Does he use a trade advisory committee to upgrade and revise the skills taught and information provided to students? Is the course content relevant to student needs, reflecting those skills necessary for successful employment in this trade? Is the overall course planned to provide a clear line of progression from one segment to another, avoiding repetition of previously studied material? Are students informed of the desired instructional outcomes of the course?

1 2 3 4 5 J. COMMUNICATION SKILLS

Can this instructor express himself, both orally and in writing, clearly and precisely, using acceptable grammar and sentence structure? Is he able to speak before a group? Does he have difficulty preparing tests and reports?

APPENDIX A. (Continued)

TPR-3

Very poor
Below average
Average
Above average
Excellent

1 2 3 4 5 K. TEACHING METHODS

Does he use a variety of teaching methods such as lectures, lecture-demonstrations, films, filmstrips, outside speakers, wall charts, field trips and bulletin board displays? Is he willing to evaluate new teaching techniques?

1 2 3 4 5 L. EVALUATION TECHNIQUES

Are students graded fairly? Are they tested on the basis of stated objectives, using a variety of evaluative devices such as written and oral tests, actual performance tests, projects and term papers? Does he seek the opinions of other staff members when in doubt about the performance of a given student? Are students given the opportunity to participate in their own evaluation?

1 2 3 4 5 M. SUPPORT OF V.I.C.A.

Does this instructor carry his share of the responsibility in the operation of a VICA chapter in your school? In the activities of the district, state and national levels? Is he enthusiastic about VICA and does he encourage students to participate in the activities of this organization? Does he incorporate the aims and objectives of VICA into his classroom instruction?

1 2 3 4 5 N. USE AND CARE OF PHYSICAL FACILITIES AND EQUIPMENT

Does this instructor attempt to make the best possible use of available classrooms and equipment? Does he properly maintain power and hand tools? Are his classrooms and laboratories clean, neat and organized? Does he assist others in the vocational department in the proper maintenance, care and use of the physical facilities and items of equipment?

1 2 3 4 5 O. SAFETY AND SAFETY INSTRUCTION

Are students given instruction on the proper use and care of hand tools and equipment? Does he make use of safety charts and color coding? Has all power equipment been equipped with the proper safety shields? Are students encouraged to practice safety within the laboratory? Does he comply with state safety laws, such as the required use of eye protection devices, and does he follow other recommended safety practices?

1 2 3 4 5 P. PLACEMENT AND FOLLOW-UP ACTIVITIES

Does he assist students completing his course in finding appropriate employment, either through his cooperation with the guidance department or by individual initiative? Does he make follow-up contacts with former students, or does he assist in this process?

1 2 3 4 5 Q. OVERALL PERFORMANCE

How would you rate the overall classroom and laboratory teaching performance of this vocational instructor?

APPENDIX A. (Continued)

(Not to be reproduced)

SELF RATING OF THE TRADE AND INDUSTRIAL EDUCATION
TEACHER'S CLASSROOM PERFORMANCE

by: Ned K. Swartz

Directions:

Operationally defined, classroom teaching performance involves those activities relating to or occurring within the classroom or laboratory setting over which the trade and industrial education teacher has control, direction, supervision and responsibility. On this basis this instrument was constructed using sixteen performance factors considered to be important for effective classroom teaching and an overall rating. In each category statements or questions have been included to direct your appraisal within that item.

Please rate yourself as fairly and objectively as possible on your classroom performance, using the scale of 1 (lowest rating) to 5 (highest rating) as provided. It is most important that you rate each item A-Q.

Please return your completed rating in the self-addressed, stamped envelope by _____, 1974.

Very poor	Below average	Average	Above average	Excellent
1	2	3	4	5

A. "PROFESSIONALISM" - PERSONAL CHARACTERISTICS

I maintain the standards of conduct, dress and morality which are expected of others on the professional staff. I possess those personal characteristics which are conducive to learning and growth by students of this age group. I do not have annoying mannerisms (such as a bad temper) which prohibit their desire to succeed.

1 2 3 4 5 B. "PROFESSIONALISM" - STAFF RELATIONS

I attempt to cooperate with local, district and state administrative and instructional personnel. I am respected by other teachers, and I respect them. I am dedicated to working as a team member for the betterment of the educational opportunities provided young people.

1 2 3 4 5 C. "PROFESSIONALISM" - EDUCATIONAL ORGANIZATIONS

I am active in those professional organizations which seek to improve the quality of teaching and learning. I make use of the publications, in-service meetings, and seminars of these organizations for the improvement of my classroom teaching performance.

APPENDIX A. (Continued)

Very poor
Below average
Average
Above average
Excellent

SR-2

1 2 3 4 5 D. MOTIVATION OF STUDENTS

I encourage creativity and individualism among my students. They are motivated to perform to the best of their abilities in every task which they undertake. I seek students' opinions and ideas in accomplishing tasks and solving problems in the classroom or laboratory setting.

1 2 3 4 5 E. CLASSROOM CONTROL

I maintain control of the classroom environment in a manner which elicits mutual respect between teacher and students. I am impartial in my dealings with students, respecting their rights as individuals. I earn the respect of my students rather than demand respect through coercive methods.

1 2 3 4 5 F. VOCATIONAL SUBJECT KNOWLEDGE

I possess a high degree of knowledge and skill in my trade area. I attempt to keep abreast of new developments in the trade by periodically attending in-service and college courses designed to upgrade my skills and teaching methods. I am skilled in the use of tools and equipment employed in providing instruction.

1 2 3 4 5 G. INTEREST IN TEACHING

I am enthusiastic about teaching and working with young people. I am interested in imparting my trade skills to all young people who have a desire to learn this skill.

1 2 3 4 5 H. ORGANIZATION

I maintain a thorough, up-to-date course outline based upon state and local recommendations, which list all activities with expected outcomes. My classroom-laboratory activities are arranged into a logical pattern on a day-to-day basis in order to meet these goals. Classroom and laboratory time is used wisely.

1 2 3 4 5 I. COURSE CONTENT

I make use of a trade advisory committee to assist in the updating and revision of skills taught and information provided to students. The course content is relevant to student needs, reflecting those skills necessary for successful employment in this trade. The overall course is planned to provide a clear line of progression from one segment to another, avoiding repetition of previously studied material.

1 2 3 4 5 J. COMMUNICATION SKILLS

I possess the skills needed to express myself, both orally and in writing, clearly and precisely, using acceptable grammar and sentence structure. I continually try to evaluate myself for the improvement of any deficiencies I may have in these areas.

APPENDIX A. (Continued)

SR-3

Very poor
Below average
Average
Above average
Excellent

1 2 3 4 5 K. TEACHING METHODS

I use a variety of teaching methods such as lectures, lecture-demonstrations, films, outside speakers, field trips, filmstrips, bulletin board displays, and wall charts. I am willing to evaluate new teaching techniques.

1 2 3 4 5 L. EVALUATION TECHNIQUES

I attempt to grade students fairly on the basis of their present capability. I evaluate them on the basis of stated objectives using a variety of performance devices such as written and oral tests, actual performance tests, projects and term papers. I allow students to participate in their own evaluation and subsequent analysis of the evaluative outcomes.

1 2 3 4 5 M. SUPPORT OF STUDENT ORGANIZATIONS - V.I.C.A.

I operate or support an active VICA chapter, and participate in the work of this organization at the district, state and local levels. I encourage student participation in VICA activities and direct classroom activities around its aims and objectives.

1 2 3 4 5 N. USE AND CARE OF PHYSICAL FACILITIES AND EQUIPMENT

I attempt to make the best possible use of all available classrooms and equipment. I properly maintain all power and hand tools. Classrooms and laboratories are clean, neat, and well-organized and I require students to develop habits in support of this objective.

1 2 3 4 5 O. SAFETY AND SAFETY INSTRUCTION

Students are provided instruction on the proper use and care of hand and power equipment. I have color-coded all items of power equipment and provide safety charts which promote safe working practices. I stress the importance of safety shields on power equipment. I comply with state safety laws, such as the required use of eye protection devices, and I follow other recommended safety practices.

1 2 3 4 5 P. PLACEMENT AND FOLLOW-UP ACTIVITIES

I assist students and the guidance service of my school in locating suitable employment for vocational graduates. I conduct or assist in conducting follow-up studies of former vocational students to determine the effectiveness in training graduates who have a saleable skill.

1 2 3 4 5 Q. OVERALL PERFORMANCE

I would rate my overall classroom and laboratory teaching performance as ...

APPENDIX A. (Continued)

(Not to be reproduced)

STUDENT RATING OF THE TRADE AND INDUSTRIAL EDUCATION
TEACHER'S CLASSROOM PERFORMANCE

by - Ned K. Swartz

Directions:

Think about the teachers you have known that you consider to be "good instructors" because they possessed those qualities which you consider to be important for good teaching. Using this information, rate your trade teacher on a scale of 1 (lowest rating) to 5 (highest rating) as shown below. Circle the number which most clearly represents your opinion for each section. Questions have been asked to increase your understanding of the factors used to measure classroom teaching performance.

Do not discuss this rating form or your answers with other students. It is to be your own opinions of your teacher.

Be sure you rate each item A-P. A blank on any answer will automatically disqualify your rating. When you are finished, the person in charge will collect this form.

Very poor
Below average
Average
Above average
Excellent

1 2 3 4 5 A. "PROFESSIONALISM" - PERSONAL CHARACTERISTICS

Does your instructor dress neatly and suitably for the type of activities you have in class? Is his behavior (such as language, actions, and opinions) in keeping with the respect you feel you should have for teachers? Does he have any annoying mannerisms (such as speech habits and gestures) which have an effect on your opportunity to learn?

1 2 3 4 5 B. "PROFESSIONALISM" - STAFF RELATIONS

Does he respect other teachers and the administrators of your school? Is he willing to help other teachers with their problems? Do other teachers respect him?

1 2 3 4 5 C. RELATIONSHIP WITH STUDENTS

Do you feel that your instructor enjoys helping young people? Is he considerate of their feelings? Is he patient, friendly, and helpful? Does he show a genuine interest in all students?

APPENDIX A. (Continued)

S-2

1 Very poor
2 Below average
3 Average
4 Above average
5 Excellent

D. MOTIVATION OF STUDENTS

Are students' opinions used in deciding how to solve problems and how to get work done in the classroom or laboratory? Are students' ideas valued by your instructor? Are you encouraged to do your best in every job or task you attempt? Are you encouraged to explore new ideas?

1 2 3 4 5 E. CLASSROOM CONTROL

Does your instructor maintain control of the classroom or laboratory? Is he fair in his treatment of students? Is he respected by your classmates and by you?

1 2 3 4 5 F. VOCATIONAL SUBJECT KNOWLEDGE

Does your instructor demonstrate a thorough knowledge and understanding of the trade and industrial education subject in which he is teaching? Is he skilled in the use of tools and equipment of the trade? Are the skills which he teaches up-to-date with those you have observed in your community, in your trade area?

1 2 3 4 5 G. TEACHER INTEREST IN SUBJECT

Is your instructor interested in the subject he teaches? Does he make the subject interesting for you? Does he seem to enjoy teaching?

1 2 3 4 5 H. ORGANIZATION

Is your instructor organized? Is there a "plan of action" for each class activity? Do classroom activities seem to follow an orderly arrangement? Do they seem to fit into a logical pattern on a day-to-day basis? Is classroom time used wisely?

1 2 3 4 5 I. COURSE CONTENT

Does the content of your vocational course relate to your career objective and interest? Have you been given a course outline with clear statements of what you are to learn (objectives)? Are classroom-laboratory activities related to this course outline? Are you learning new material in this course or is it simply a repeat of what you have previously studied?

1 2 3 4 5 J. COMMUNICATION SKILLS

Does your instructor provide lectures and demonstrations in a clear and precise manner, using correct grammar and sentence structure? Are instructions and assignments given in a way in which you know what to do? Are written assignments, tests and examinations easy to read and understand?

APPENDIX A. (Continued)

Very poor
Below average
Average
Above average
Excellent

S-3

1 2 3 4 5 K. TEACHING METHODS

Does your instructor provide a variety of teaching methods such as lectures, lecture-demonstrations, films, outside speakers, filmstrips, bulletin board displays, field trips and wall charts?

1 2 3 4 5 L. EVALUATION TECHNIQUES

Are you graded fairly? Does your instructor test you on the things he teaches in class? Are you given a chance to participate in your own grading? Does he grade papers, tests and projects promptly? Does your instructor use a variety of performance devices to measure your progress, such as both written and oral tests, actual performance tests, projects, term papers and classroom assignments?

1 2 3 4 5 M. SUPPORT OF STUDENT ORGANIZATIONS - V.I.C.A.

Does your instructor support the work of the Vocational Industrial Clubs of America through his activities in the local, district, state and national organizations? Are classroom activities directed around the aims and objectives of this club? Are you encouraged to participate in VICA activities?

1 2 3 4 5 N. USE AND CARE OF PHYSICAL FACILITIES AND EQUIPMENT

Does your instructor attempt to make the best possible use of available classrooms, laboratories and equipment? Is all equipment in good mechanical condition? Are students required to keep classrooms and equipment clean and well-organized?

1 2 3 4 5 O. SAFETY AND SAFETY INSTRUCTION

Are you given instruction on the proper use and care of each hand tool and item of power equipment in the classroom or laboratory? Are safety posters used in the laboratory? Has equipment been color coded and equipped with the proper safety shields? Is safety instruction an important part of the course content? Are you required to wear glasses or goggles when working in the shop, as required by state law?

1 2 3 4 5 P. OVERALL PERFORMANCE

How would you describe the overall classroom and laboratory teaching performance of your vocational instructor?

APPENDIX B.

Letter to Instructors Requesting Their Participation in the Study

1600-C Terrace View Apts.
Blacksburg, Virginia 24060
February 22, 1974

Dear

I would like to obtain your assistance on a special study I am conducting as my doctoral dissertation, in vocational education, at Virginia Polytechnic Institute and State University.

I am engaged in research to determine the effects of trade experience, teaching experience, and credit hours earned in professional education courses, on the classroom teaching performance of selected day trade instructors in Virginia. I have randomly selected you and 71 other teachers across the state with varying amounts of these three variables. If you agree to become one of this group, I will need to obtain performance ratings on you from the following:

- a. your local supervisor or director of vocational education
- b. your school principal or assistant principal
- c. two of the trade and industrial education teachers with whom you teach
- d. the students of your first daily class
- e. a self rating of your own teaching performance.

Each of these ratings has been developed and field tested as a part of this study. They have proved to be very reliable measures of classroom teaching performance.

I have been a teacher and I realize the threat that "performance ratings" can be to you. Let me assure you, however, that I am only interested in data to be used in my dissertation and no one else will EVER see these ratings. I will also take the following steps to assure you that they will remain confidential:

- a. No names will appear in the study report or on any other written or printed material.
- b. No other person or agency will have access to the performance evaluations.
- c. All ratings except the student form will be handled by mail.
Students will be administered their form by either another trade teacher in your school or by one of your administrators. They will collect it and mail those completed to me.

I hope you will agree to assisting me in this study. As a convenience to you, if I do not receive a written statement by _____ 1974, I will assume this meets with your approval.

Thank you for your help in this matter.

Sincerely,

Ned K. Swartz
Ned K. Swartz

Letter authorized by:

Lester G. Duenk

Lester G. Duenk,
Chairman of Dissertation Committee

APPENDIX C.

Letter to School Division Superintendents Requesting
Permission to Conduct the Study

1600-C Terrace View Apts.
Blacksburg, Virginia 24060
February 22, 1974

Dear

I am currently pursuing the Ed. D. in Vocational Education at Virginia Polytechnic Institute and State University. The dissertation topic which I have selected involves a study of the effects of trade experience, teaching experience and professional education credit hours on the classroom teaching performance of selected day trade instructors in Virginia.

In order to effectively measure teaching performance I need to obtain ratings from one vocational supervisor, one high school principal or assistant principal, two teacher peers, one class of students presently taught by the trade teacher and one teacher self rating. Each of these ratings, except the student evaluation, will be conducted using a mail survey. I intend to enlist the help of the assistant principal or another trade instructor in each school for the administration of the student rating in order to insure that it will be handled in a professional and confidential manner.

I would like to obtain your approval of my working with the following instructor(s) in your school division:

I can assure you that all ratings will be held in strict confidence and that they will not be used for any purpose other than to supply data for this study. The results of the ratings will not be released to any person or agency, and the names of individuals involved will not be used in the dissertation.

The results of this study will be used by local and state administrators in vocational education to assist in planning vocational teacher certification courses, and should attempt to answer questions administrators may have regarding the effects of these variables upon the teaching performance of non-degree trade instructors. It has

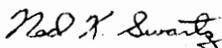
APPENDIX C. (Continued)

generated considerable interest among the local and state educational personnel who I have consulted, and I have secured the support of Mr. George S. Orr, Jr., State Director of Vocational Education and Mr. George W. Swartz, State Supervisor of Trade and Industrial Education.

If you prefer that I not conduct this survey in your school division, please inform me in writing by March 1, 1974, otherwise, as a convenience to you, a reply will not be necessary.

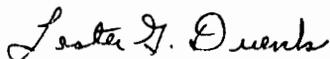
Thank you for your attention to this matter and for your assistance in the study.

Sincerely,



*Ned K. Swartz, Doctoral Candidate
Virginia Polytechnic Institute & State University*

Authorized by:



*Dr. Lester G. Duenk, Professor
Industrial Education & Chairman of
Dissertation Committee*



*Prof. Stuart M. Beville, Director
Off Campus Affairs & Member of Dissertation Committee*

APPENDIX D.

Members of Expert Committee

Dr. Rufus Beamer, Executive Director
State Advisory Council on Vocational Education
Commonwealth of Virginia
Blacksburg, Virginia

Mr. Gordon Cromer, Supervisor
Vocational Education
Montgomery County Schools
Christiansburg, Virginia

Mr. Lloyd Enoch, Director
Vocational and Adult Education
Roanoke City Schools
Roanoke, Virginia

Mr. McClelland M. Gray, Assistant State Supervisor
Trade and Industrial Education Service
State Department of Education
Commonwealth of Virginia
Richmond, Virginia

Mr. Jacob H. Lowe, Assistant State Supervisor
Trade and Industrial Education Service
State Department of Education
Commonwealth of Virginia
Abingdon, Virginia

Mr. George L. Sandvig, Former State Director (retired)
Division of Vocational Education
State Department of Education
Commonwealth of Virginia
(now residing in Eau Claire, Wisconsin)

Mr. George W. Swartz, State Supervisor
Trade and Industrial Education
State Department of Education
Commonwealth of Virginia
Richmond, Virginia

APPENDIX E.

Letter to Expert Committee

1600-C Terrace View Apartments
Blacksburg, Virginia 24060
January 7, 1974

Dear Mr.

As requested earlier, I would like you to serve as a member of a committee of experts to provide face validity for the instruments which I have designed to measure classroom teaching performance of selected trade and industrial education instructors in the secondary schools of Virginia. This is a portion of the work on my dissertation for the Ed. D. in Vocational Education at Virginia Tech.

Briefly stated, I am attempting to compare the variables of years of trade experience, hours of professional education credits (both general professional education and vocational-industrial education), and years of teaching experience with the variable of classroom teaching performance. This will be accomplished using the following steps:

- A. All high school trade and industrial education teachers (except ICT) will be categorized into one of the following groups, based upon pre-stated cut-off points, from data on file at the State Department of Education:
 1. Low trade experience (years), high hours of education credits, high teaching experience (years)
 2. Low trade, high education, low teaching
 3. High trade, low education, high teaching
 4. High trade, low education, low teaching
 5. High trade, high education, high teaching
 6. High trade, high education, low teaching
 7. Low trade, low education, high teaching
 8. Low trade, low education, low teaching
- B. A random, equal sample of teachers will be selected from each group. These instructors will then become the population on whom all data is gathered for the dissertation (stratified sampling).

APPENDIX E. (Continued)

- C. Performance evaluations will be obtained on all teachers within the population using five separate ratings for each teacher: an administrator rating (principal or assistant principal in charge of vocational education); a supervisor rating (local supervisor of vocational or trade and industrial education); student ratings (at least three of the teacher's current students); teacher peer ratings (at least two); and a teacher self-rating.
- D. Appropriate statistical analysis will be applied to the data.

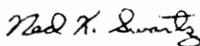
I am hopeful that I will be able to apply some of the questions often raised by those who are doubtful about such things as the worth of efforts in T. & I. teacher training, the ability of non-degree trade teachers to perform effectively in the classroom, etc. to the results obtained from this study. It should prove beneficial to leaders in the field of industrial education in Virginia as they attempt to justify the value of recruiting teachers directly from industry.

Please review these instruments for such factors as face validity, clarity, appropriate phrasing, importance of each item, etc. You may write on any part of the copy, mark out words or sentences (or items!) which are incorrect or not important.

Please return these ratings (total of four) to me as soon as possible, using the enclosed stamps and mailing label.

I am most appreciative of your help and assistance in helping me toward the doctorate.

Sincerely,



Ned K. Swartz

APPENDIX F.

Comments from Expert Committee Concerning Rating Forms



STATE DEPARTMENT OF EDUCATION
RICHMOND, 23216

January 11, 1974

Mr. Ned K. Swartz
Assistant Supervisor
Vocational Education
Montgomery County Schools
Box 29
Christiansburg, Virginia 24073

Dear Ned:

I have reviewed the instruments that you have designed to measure classroom teaching performance of selected Trade and Industrial Education instructors.

I think you have done an excellent job in devising these instruments and I really do not see very much that needs to be added or corrected. You will note, however, that I have placed a few suggestions with a red pencil on one or two of the copies mostly from the standpoint of suggesting that you be consistent all the way through.

I hope you will have no trouble in incorporating the suggestions that might be made by your committee of experts to check the validity of the instruments.

We look forward to working with you on the weekend of the 19th and possibly a couple of days thereafter in trying to identify the instruments that you will use in this project.

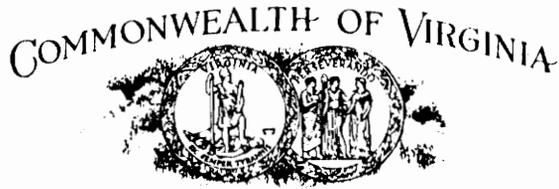
Sincerely yours,

A handwritten signature in cursive script, appearing to read "G. Swartz", is written over the typed name.

George W. Swartz, Supervisor
Trade and Industrial Education

GWS/srw
Enclosure

APPENDIX F. (Continued)



STATE DEPARTMENT OF EDUCATION
RICHMOND. 23216

P. O. Box 1268
Staunton, Virginia 24401
January 18, 1974

Mr. Ned K. Swartz
1600-C Terrace View Apartments
Blacksburg, Virginia 24060

Dear Ned:

I have reviewed the instruments you propose to use in evaluating the teaching performance of selected Trade and Industrial Instructors.

First, let me say that I feel that the questionnaires are generally well constructed. However, Item #6 (Vocational Subject Knowledge) on the student assessment form, calls for a judgement by the student that I personally do not feel that the average student is qualified to make. Would it not be possible to reword this question so that it reflects a less positive statement? For example, might it not be better to say: Does your instructor demonstrate a thorough knowledge and understanding of the Trade and Industrial Education Subject in which he is teaching?

Ned, I wish you continued success in your work and will be interested in seeing the results of your study. Please let me know if I can be of any further assistance.

Sincerely,


McClelland M. Gray
Assistant State Supervisor
Trade and Industrial Education

MMG:en

APPENDIX F. (Continued)

January 17, 1974

Mr. Ned K. Swartz
Montgomery County Schools
Christiansburg, Virginia 24073

Dear Ned:

Enclosed are the four rating sheets which I have examined for the various factors which you asked me to look for. In most cases my suggestions are duplicated on all rating sheets but probably worded a little differently.

On SR - 2 under E. Classroom Control, the word "command" bothers me a little. It seems a bit harsh or dictatorial. I substituted "maintain" but I am not quite satisfied with that either.

Under G. in three of the rating sheets I have added the responsibility for placement and follow-up on the part of the trade teacher. In many smaller schools or communities, there is no provision for this unless it is done by the instructor. It need not be burdensome, as the instructor in these communities would want to have contact with local industrial firms and service businesses anyway.

In general, I feel that the instruments you have designed are valid and well-worded. They will make an excellent contribution to those involved in teacher education as well as those in the administrative phases of vocational industrial education programs in Virginia.

My commendations to you also on your progress toward your doctoral degree. Virginia needs more people holding doctorates in the field of vocational education. Keep up the good work.

With best wishes, I am

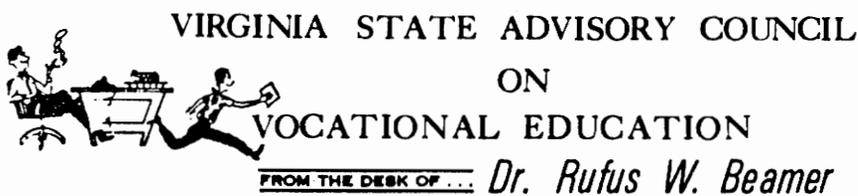
Sincerely yours,


George L. Sandvig

GLS:js

2805 Eisenhower Street
Eau Claire, Wi. 54701

APPENDIX F. (Continued)



Ned -

Your questionnaires look very good to me. I have made a few marks on them that you may want to consider as you revise them.

I think your bigger problem will be in the administration of the questionnaires - and I don't have the answer to this one! Good luck!

APPENDIX G.

Cover Letter for Pilot Study

1600-C Terrace View Apts.
Blacksburg, Virginia 24060
January 28, 1974

Dear

As a part of my doctoral dissertation at VPI & SU I have developed instruments which can be used to measure classroom teaching performance of trade and industrial education instructors. Five instruments have been designed: a student form, an administrator form, a supervisor rating, a teacher-peer rating, and a teacher self-rating scale.

Part of the development of these instruments involves a pilot test for reliability using members of each group to complete the rating on two separate occasions, with a time period of two or more weeks between each of the ratings. I need your help on this portion. Will you please rate the classroom teaching performance of:

using the enclosed scale. I would appreciate your returning the completed rating to me promptly, preferably no later than January 31. To assist you in this process, you will find a stamped, self-addressed envelope enclosed.

I am sure that you are somewhat concerned about keeping your rating confidential, and I want to point out to you the steps I will take to assure that it remains this way:

- a. The rating will be used only to test for reliability and will be destroyed immediately after this has been established.
- b. Your name and that of the person you are rating does not appear on the scale, however, a number has been assigned as a check on the ones returned.
- c. The list of numbers will also be destroyed as soon as reliability has been established.
- d. No other person will ever see the rating you complete.

Thank you for your help in completing this scale. I am most appreciative of your assistance and cooperation.

Sincerely,

Ned K. Swartz

Ned K. Swartz

APPENDIX H.

Directions for Use of Student Ratings

DIRECTIONS FOR ADMINISTRATION OF STUDENT RATINGS

(Study by Ned Swartz of VPI & SU)

1. Administer to the first daily class of the instructor whose name appears below.

(If more than one instructor is involved from your school,
his name appears on a separate set of instructions.)

2. Tell students that they are being given an opportunity to participate in an evaluation of their instructor's teaching performance and that these ratings will not be seen by their teacher. Remind them to complete all portions.
3. Directions have been given on the rating form. Students should be reminded that this is to be their own opinions of their teacher and that they should not confer with other students when completing the rating.

[The person who administers the rating should be careful not to bias the results by suggesting answers to the students, however, questions raised by students concerning wording, directions, etc. MAY be answered.]
- * 4. Fifteen (15) forms have been provided for each instructor involved in the study. Administer to only the first class of the instructor's daily schedule.
5. Please return all completed forms in the large envelope in which they were mailed from Blacksburg. Correct postage and a self-addressed mailing label has been enclosed. Place new address label directly over the original.
6. PLEASE COMPLETE AND RETURN WITHIN ONE WEEK FROM THE DATE YOU RECEIVED THESE RATINGS, preferably by March 12, 1974.
7. Questions involving these ratings should be directed to :

Ned K. Swartz
1600-C Terrace View Apts.
Blacksburg, Virginia

Ph: (703) 951-2844 after 4:30 p.m. COLLECT

THIS RATING SHOULD NOT BE ADMINISTERED BY THE TEACHER INVOLVED
IN THE STUDY

- * Administer to not more than 15 students - suggest the first 15 on the class roll.

Thank you for your assistance in this project!

APPENDIX I.

Cover Letter for Performance Ratings

1600-C Terrace View Apts.
Blacksburg, Virginia 24060
February 27, 1974

Dear

I am currently pursuing the Ed. D. in Vocational Education at Virginia Polytechnic Institute and State University. The dissertation topic which I have selected involves a study of the effects of trade experience, teaching experience and professional education credit hours on the classroom teaching performance of selected day trade instructors in Virginia.

In order to effectively measure teaching performance I need to obtain ratings from vocational supervisors, high school principals, teacher peers, students and self-ratings from each of the 72 teachers who have agreed to participate in this study.

Will you please complete the enclosed rating form for the teacher whose name is listed on the instrument and return it to me promptly? A self-addressed envelope has been included to assist you in this process.

Please note that this study has been approved by your division superintendent and by each of the teachers who have been selected. I can assure you that all ratings will be held in strict confidence and that they will not be used for any purpose other than to supply data. The results will not be released to any person or agency, and the names of individuals involved will not be used in the dissertation.

Again I urge you to complete this form at your earliest convenience. It has been designed to require a minimum amount of your time. An early return would greatly expedite my research.

Thank you for your cooperation and assistance in this matter.

Sincerely,

Letter authorized by:

Lester G. Duenk

Lester G. Duenk, Professor
Industrial Education & Chairman
of Dissertation Committee

Ned K. Swartz
Doctoral Candidate
VPI & SU

APPENDIX J.

Coefficients for Canonical Variables
(Chapter 4, Section 3)

Item	Dimensions		
	I	II	III
1	0.43340	0.34257	-0.18097
2	0.20547	0.03074	0.49367
3	0.02807	-0.59308	-0.02576
4	0.31935	-0.35435	-0.26982
5	0.24683	0.88288	-0.60828
6	-0.20223	-1.12833	-0.42508
7	0.03343	0.10906	0.03551
8	-0.89946	-0.02769	0.49596
9	-0.39620	0.13977	0.33367
10	0.50674	0.20234	0.34767
11	0.08834	-0.23567	0.15011
12	-0.24558	0.19049	-0.50692
13	-0.13955	-0.11815	-0.47472
14	-0.28105	0.41932	-0.35616
15	-0.40136	0.30270	0.82198

APPENDIX K.

Glossary of Terms

Comprehensive high school: A secondary school with a number of departments (e. g. academic, industrial, business) offering a diversified program designed to meet the needs of students with varying interests and abilities in grades 9-12 (State Department of Education, 1973b:108).

Cooperative programs: Those vocational industrial education courses which provide supervised on-the-job training as well as related classroom instruction.

Day trade courses: Courses conducted for those regularly enrolled as full-time students who have selected a trade or industrial pursuit and who wish to prepare for useful employment (State Department of Education, 1973b:108).

Director of vocational education: The individual appointed to supervise the total vocational education program in a school division.

Disadvantaged classes: Special courses designed for those students who have two or more of the following characteristics: (a) personality, home or emotional problems, (b) members of families with low incomes, (c) low or underachievers, (d) behind one or more grades, (e) uninterested in school, (f) lacking in personal goals, (g) culturally or linguistically isolated, or (h) those who may be normal or above in potential ability but failing to achieve for any reason (State Department of Education, 1973b:109).

Evaluation: Determining the effectiveness of instruction or teaching performance.

APPENDIX K. (Continued)

Glossary of Terms

Exploratory courses: Courses designed to provide the student with a broad, general overview of the knowledge and skills involved in a field of learning (State Department of Education, 1973b:109).

Handicapped classes: Classes designed for persons who are (a) mentally retarded, (b) hard of hearing, (c) deaf, (d) speech impaired, (e) physically handicapped, (f) seriously and emotionally distressed, (g) crippled, or (h) possess other health impairments who by result thereof require special education or related services. (State Department of Education, 1973b:109).

Health occupation programs: Courses designed to train skilled workers in the medical professions, either at a professional or para-professional level.

Ratee: Those instructors on whom the performance evaluation is being conducted.

Rater: Those persons who evaluate classroom teaching performance, specifically, (1) school administrators, (2) supervisors, (3) teacher-peers, (4) teachers on a self-rating, and (5) students.

Regular professional education courses: Undergraduate or graduate college level courses dealing with the study of the history, philosophy, psychology, content, and pedagogy of education. Does not include specialized subject-matter courses such as vocational technical education, business education, or directly related areas of supervision, curriculum and instruction, etc.

APPENDIX K. (Continued)

Glossary of Terms

Teacher certification: The approval action by legally authorized school authorities on the professional and technical qualifications of teachers; based on minimum standards adopted by each state (State Department of Education, 1973b:113).

Teacher education programs: A body of courses designed (1) to prepare prospective teachers for instruction in vocational industrial education subjects and (2) to upgrade and retrain those already employed as teachers.

Vocational certificate: An endorsement issued to public secondary vocational industrial education instructors who have less than a baccalaureate degree but who have a high school diploma and two or more years of trade experience beyond the learning period.

Vocational industrial education: Instruction planned to develop basic manipulative skills, safety judgment, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations and upgrading or retraining workers employed in industry.

Vocational technical center or vocational center: A public secondary school or wing of a comprehensive secondary school which offers a variety of vocational courses dealing with the skills, technical knowledge, related industrial information, and job judgment necessary for successful employment.

APPENDIX L.

Population Data

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
1	20	0	0	0	0
2	4	20	25	21	46
3	3	0	0	0	0
4	7	14	30	0	30
5	24	0	0	0	0
6	6	5	34	8	42
7	6	3	21	0	21
8	2	16	30	0	30
9	20	8	0	0	0
10	24	0	0	0	0
11	0	0	32	0	32
12	18	0	9	22	31
13	5	1	0	2	2
14	8	0	0	0	0
15	15	7	0	15	15
16	3	1	0	0	0
17	10	0	0	0	0
18	20	7	30	6	36
19	10	26	0	12	12
20	20	2	0	10	10
21	22	1	0	4	4
22	4	3	0	8	8
23	7	1	0	4	4
24	17	2	0	12	12
25	27	0	0	0	0
26	2	14	34	0	34

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
27	3	0	0	2	2
28	2	3	0	4	4
29	5	0	30	0	30
30	7	1	0	10	10
31	20	5	0	2	2
32	25	5	0	10	10
33	5	18	26	13	39
34	2	23	14	13	27
35	2	2	0	2	2
36	10	1	0	2	2
37	12	3	0	16	16
38	15	7	0	14	14
39	3	1	6	29	35
40	0	0	0	0	0
41	5	3	0	15	15
42	3	0	0	6	6
43	13	3	0	10	10
44	0	4	0	2	2
45	17	2	0	14	14
46	16	4	0	10	10
47	6	4	0	10	10
48	14	2	0	6	6
49	6	4	0	8	8
50	1	0	0	0	0
51	8	4	6	14	20
52	2	1	0	6	6
53	20	1	0	0	0
54	15	9	32	0	32

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
55	30	6	0	13	13
56	25	6	3	14	17
57	8	6	0	14	14
58	4	1	0	0	0
59	25	6	0	18	18
60	15	21	21	21	42
61	25	6	0	17	17
62	2	13	48	0	48
63	2	1	0	0	0
64	2	6	50	15	65
65	12	2	0	6	6
66	4	5	6	8	14
67	15	5	6	10	16
68	20	5	6	8	14
69	3	5	0	15	15
70	22	5	0	12	12
71	15	5	0	6	6
72	10	2	0	4	4
73	10	10	9	16	25
74	14	2	0	10	10
75	28	2	0	0	0
76	15	1	0	6	6
77	13	2	0	8	8
78	16	2	0	10	10
79	18	2	0	10	10
80	16	4	0	10	10
81	3	9	18	24	42
82	15	6	3	10	13

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
83	2	1	0	0	0
84	12	1	0	0	0
85	3	15	48	28	76
86	25	3	0	4	4
87	13	4	0	12	12
88	10	5	0	13	13
89	4	2	22	0	22
90	20	4	0	8	8
91	4	3	0	6	6
92	10	3	0	8	8
93	4	2	0	6	6
94	12	4	0	8	8
95	6	2	0	0	0
96	20	13	38	2	40
97	10	1	0	4	4
98	2	14	25	6	31
99	20	7	0	14	14
100	8	5	0	12	12
101	12	6	0	17	17
102	10	1	6	7	13
103	15	5	0	13	13
104	20	3	0	4	4
105	10	25	36	0	36
106	4	9	2	14	16
107	11	0	0	1.5	1.5
108	10	2	0	2	2
109	11	5	0	12	12
110	18	10	0	10	10

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
111	15	10	8	9	17
112	2	2	0	8	8
113	17	6	0	10	10
114	10	2	0	12	12
115	6	3	0	8	8
116	20	0	0	0	0
117	17	3	0	8	8
118	17	3	0	8	8
119	15	5	0	22	22
120	8	5	0	12	12
121	30	5	0	18	18
122	11	0	0	2	2
123	3	3	0	8	8
124	1	4	0	8	8
125	20	7	0	18	18
126	3	17	24	0	24
127	10	4	0	14	14
128	10	8	0	12	12
129	25	4	0	16	16
130	6	2	0	4	4
131	10	4	0	10	10
132	2	12	30	0	30
133	4	3	3	9	12
134	6	8	2	27	29
135	6	2	0	0	0
136	10	1	0	0	0
137	8	13	0	8	8
138	2	0	15	0	15

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
139	15	0	0	0	0
140	4	7	0	10	10
141	5	2	0	0	0
142	2	2	25	11	36
143	8	1	0	21	21
144	5	26	6	10	16
145	24	5	3	9	12
146	9	2	0	0	0
147	15	1	0	0	0
148	20	2	0	0	0
149	10	1	0	0	0
150	8	2	0	0	0
151	14	3	0	2	2
152	25	2	0	2	2
153	0	7	19	0	19
154	4	2	0	0	0
155	8	6	5	25	30
156	12	6	0	14	14
157	8	14	40	12	52
158	4	5	0	13	13
159	2	1	0	0	0
160	10	5	0	13	13
161	5	5	20	20	40
162	4	0	0	0	0
163	2	0	0	0	0
164	8	6	0	14	14
165	13	4	0	0	0
166	10	2	0	0	0

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
167	6	3	0	4	4
168	2	3	0	0	0
169	5	2	0	2	2
170	15	7	0	12	12
171	18	4	0	8	8
172	12	8	0	20	20
173	0	1	0	0	0
174	15	7	0	14	14
175	2	8	0	12	12
176	18	1	0	2	2
177	5	4	0	10	10
178	4	8	0	12	12
179	10	2	0	2	2
180	5	2	0	2	2
181	16	2	0	2	2
182	20	0	0	0	0
183	1	2	0	4	4
184	20	6	0	10	10
185	8	3	0	6	6
186	5	23	15	8	23
187	15	8	6	13	19
188	14	6	26	15	41
189	8	11	17	18	35
190	3	2	0	8	8
191	10	15	3	22	25
192	8	7	0	11	11
193	3	13	38	0	38
194	14	8	0	18	18

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
195	4	0	0	0	0
196	15	3	0	8	8
197	14	0	0	2	2
198	2	6	30	0	30
199	10	1	0	4	4
200	12	2	0	4	4
201	15	1	0	0	0
202	6	1	0	4	4
203	2	1	0	2	2
204	5	5	3	9	12
205	8	1	12	0	12
206	5	10	0	10	10
207	20	1	0	0	0
208	25	0	0	0	0
209	25	1	0	0	0
210	7	14	15	3	18
211	2	0	12	21	33
212	9	0	0	0	0
213	2	0	0	0	0
214	25	0	0	25	25
215	10	15	10	18	28
216	0	0	9	20	29
217	0	1	15	27	42
218	16	5	0	12	12
219	15	5	0	14	14
220	30	3	0	10	10
221	2	1	0	9	9
222	8	4	0	3	3

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
223	20	6	18	12	30
224	12	1	0	3	3
225	14	4	0	6	6
226	4	5	8	16	24
227	2	8	3	14	17
228	20	5	0	6	6
229	4	5	0	19	19
230	12	5	0	13	13
231	2	5	0	15	15
232	3	18	45	21	56
233	25	5	0	13	13
234	25	4	0	6	6
235	2	10	39	15	54
236	25	5	0	18	18
237	9	5	0	4	4
238	25	3	0	8	8
239	21	4	0	2	2
240	4	3	0	10	10
241	8	8	0	21	21
242	2	3	0	0	0
243	2	3	0	42	42
244	2	10	0	25	25
245	24	6	0	12	12
246	10	5	0	12	12
247	8	7	0	3	3
248	4	22	32	22	54
249	8	12	0	0	0
250	10	5	0	12	12

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
251	15	7	0	12	12
252	12	0	12	0	12
253	18	5	0	13	13
254	3	3	0	11	11
255	2	2	0	4	4
256	25	4	0	10	10
257	10	0	0	0	0
258	20	0	3	10	13
259	12	4	0	10	10
260	22	1	0	0	0
261	20	1	0	0	0
262	8	3	23	6	29
263	30	8	54	6	60
264	16	5	6	12	18
265	4	1	0	2	2
266	12	4	0	15	15
267	1	2	0	2	2
268	1	4	0	25	25
269	2	15	0	16	16
270	4	8	29	6	35
271	1	1	0	0	0
272	4	14	27	0	27
273	1	2	0	2	2
274	3	1	0	2	2
275	20	15	0	19	19
276	5	2	0	10	10
277	16	6	0	12	12
278	14	3	28	0	28

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
279	5	4	0	4	4
280	2	3	0	0	0
281	10	10	0	12	12
282	15	3	0	10	10
283	30	5	0	12	12
284	15	5	0	9	9
285	18	13	20	18	38
286	9	6	0	12	12
287	18	3	0	5	5
288	18	2	0	0	0
289	25	5	12	6	18
290	25	5	0	14	14
291	20	4	0	9	9
292	4	12	24	30	54
293	18	8	0	9	9
294	10	5	18	6	24
295	4	1	2	0	2
296	12	5	0	12	12
297	15	24	17	16	33
298	7	0	0	0	0
299	20	5	0	12	12
300	2	33	12	9	21
301	5	27	15	24	39
302	25	10	0	24	24
303	5	4	0	12	12
304	15	11	0	38	38
305	4	15	6	22	28
306	19	4	0	8	8

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
307	2	19	48	0	48
308	18	5	0	14	14
309	22	3	0	4	4
310	5	6	0	10	10
311	18	6	3	12	15
312	8	29	38	2	40
313	3	4	0	4	4
314	12	9	0	12	12
315	10	9	0	22	22
316	20	10	0	14	14
317	22	9	11	16	27
318	20	0	0	0	0
319	20	9	3	21	24
320	3	2	0	8	8
321	3	1	0	2	2
322	23	8	2	18	20
323	2	10	20	3	23
324	15	8	3	14	17
325	11	10	0	12	12
326	2	6	0	12	12
327	3	8	0	18	18
328	3	1	0	8	8
329	5	6	3	10	13
330	25	9	2	24	26
331	15	9	0	22	22
332	8	2	0	6	6
333	10	3	0	4	4
334	2	6	0	10	10

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
335	20	9	0	18	18
336	24	2	0	6	6
337	2	5	53	0	53
338	7	4	0	9	9
339	1	5	0	16	16
340	2	0	0	0	0
341	5	3	0	12	12
342	12	2	0	6	6
343	18	3	0	4	4
344	20	5	3	16	19
345	18	10	0	14	14
346	20	1	0	4	4
347	15	1	0	2	2
348	30	0	0	0	0
349	4	7	3	12	15
350	2	7	44	0	44
351	15	3	0	4	4
352	15	7	3	12	15
353	10	2	0	8	8
354	1	5	0	12	12
355	12	1	0	2	2
356	20	2	0	8	8
357	10	0	0	0	0
358	25	0	0	0	0
359	4	7	0	10	10
360	22	2	0	8	8
361	10	3	0	6	6
362	30	2	0	4	4

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
363	17	2	0	6	6
364	22	5	3	8	11
365	2	5	76	6	82
366	20	6	6	6	12
367	20	7	6	12	18
368	2	4	0	4	4
369	4	6	3	8	11
370	20	6	14	23	37
371	8	4	0	2	2
372	12	2	0	8	8
373	7	5	0	12	12
374	8	4	0	12	12
375	5	5	3	10	13
376	5	5	3	9	12
377	11	5	0	12	12
378	20	1	0	4	4
379	10	2	0	6	6
380	25	5	0	12	12
381	15	5	3	10	13
382	8	4	0	2	2
383	20	6	2	16	18
384	16	8	0	16	16
385	6	24	0	22	22
386	16	16	0	7	7
387	12	9	0	19	19
388	5	10	0	18	18
389	10	9	0	16	16
390	19	16	0	0	0

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
391	25	0	0	0	0
392	24	6	0	12	12
393	20	1	0	3	3
394	18	1	0	3	3
395	15	1	0	3	3
396	25	1	0	3	3
397	10	1	22	0	22
398	4	5	0	12	12
399	13	0	0	6	6
400	16	1	0	3	3
401	18	1	0	3	3
402	11	1	0	3	3
403	2	1	30	12	42
404	10	1	0	3	3
405	2	1	0	3	3
406	9	0	0	6	6
407	15	1	0	0	0
408	20	1	0	0	0
409	8	5	0	12	12
410	0	0	0	0	0
411	0	1	0	0	0
412	20	5	0	12	12
413	10	21	9	18	27
414	20	4	0	3	3
415	15	3	15	18	33
416	2	2	0	0	0
417	5	6	0	21	21
418	10	1	0	0	0

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
419	8	15	0	28	28
420	4	4	0	12	12
421	12	8	0	24	24
422	4	3	0	13	13
423	4	5	0	12	12
424	15	8	0	14	14
425	7	8	0	14	14
426	6	9	3	16	19
427	2	9	0	26	26
428	10	0	15	25	40
429	30	0	0	0	0
430	6	1	0	2	2
431	12	23	6	20	26
432	5	22	9	18	27
433	15	25	9	16	25
434	6	21	9	18	27
435	6	3	0	0	0
436	25	7	9	6	15
437	2	4	0	2	2
438	0	13	9	16	25
439	6	25	12	16	28
440	15	7	6	6	12
441	4	9	9	10	19
442	5	6	9	4	13
443	22	11	9	12	21
444	15	2	0	0	0
445	10	0	0	0	0
446	20	4	0	6	6

APPENDIX L. (Continued)

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
447	20	2	0	8	8
448	11	4	0	12	12
449	3	0	0	2	2
450	15	2	0	4	4
451	14	4	0	12	12
452	18	2	0	6	6
453	14	12	3	24	27

APPENDIX M.

Sample Data

Group I

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
193	3	13	38	0	38
81	3	9	18	24	42
85	3	15	48	28	76
144	5	26	6	10	16
323	2	10	20	3	23
329	5	6	3	10	13
350	2	7	44	0	44
388	5	10	0	18	18
417	5	6	0	21	21

APPENDIX M.

Sample Data

Group II

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
140	4	7	0	10	10
175	2	8	0	12	12
178	4	8	0	12	12
206	5	10	0	10	10
310	5	6	0	10	10
326	2	6	0	12	12
334	2	6	0	10	10
359	4	7	0	10	10
369	4	6	3	8	11

APPENDIX M.

Sample Data

Group III

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
37	12	3	0	16	16
119	15	5	0	22	22
160	10	5	0	13	13
214	25	0	0	25	25
6	6	5	34	8	42
344	20	5	3	16	19
258	20	0	3	10	13
289	25	5	12	6	18
415	15	3	15	18	33

APPENDIX M.

Sample Data

Group IV

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
78	16	2	0	10	10
84	12	1	0	0	0
94	12	4	0	8	8
130	6	2	0	4	4
201	15	1	0	0	0
72	10	2	0	4	4
260	22	1	0	0	0
296	12	5	0	12	12
342	12	2	0	6	6

APPENDIX M.

Sample Data

Group V

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
18	20	7	30	6	36
54	15	9	32	0	32
111	15	10	8	9	17
125	20	7	0	18	18
156	12	6	0	14	14
61	25	6	0	17	17
275	20	15	0	19	19
322	23	8	2	18	20
330	25	9	2	24	26

APPENDIX M.

Sample Data

Group VI

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
9	20	8	0	0	0
325	11	10	0	12	12
110	18	10	0	10	10
128	10	8	0	12	12
170	15	7	0	12	12
286	9	6	0	12	12
314	12	9	0	12	12
390	19	16	0	0	0
392	24	6	0	12	12

APPENDIX M.

Sample Data

Group VII

Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
11	0	0	32	0	32
29	5	0	30	0	30
39	3	1	6	29	35
69	3	5	0	15	15
142	2	2	25	11	36
158	4	5	0	13	13
216	0	0	9	20	29
268	1	4	0	25	25
432	5	22	9	18	27

APPENDIX M.

Sample Data

Group VIII

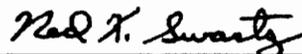
Teacher Number	Trade Experience in Years	Teaching Experience in Years	Credit Hours of Education Courses		
			Regular Professional	Vocational Industrial	Total Professional
40	0	0	0	0	0
42	3	0	0	6	6
159	2	1	0	0	0
163	2	0	0	0	0
255	2	2	0	4	4
280	2	3	0	0	0
303	5	4	0	12	12
398	4	5	0	12	12
410	0	0	0	0	0

VITA

Ned Kent Swartz was born June 8, 1943 in Harrisonburg, Virginia. At an early age he moved with his family to Staunton, Virginia where he attended the public schools of Augusta County, Virginia. He graduated from Wilson Memorial High School, Fishersville, Virginia in 1961. Later that year he entered Bridgewater College, Bridgewater, Virginia and completed two years of undergraduate study. He then transferred to Old Dominion College, Norfolk, Virginia and was awarded the B. S. degree in Secondary Education (Industrial Arts) in August, 1966.

His professional employment began as Industrial Arts Department Chairman and instructor at Woodbridge Senior High School in Prince William County, Virginia. While there, graduate studies were begun which led to the completion of the M. Ed. degree at the University of Virginia in 1971. He gained additional professional experience as Industrial Arts Department Chairman at H. F. Byrd Middle School, Henrico County, Virginia. An increasing interest in the field of vocational education contributed to his decision to continue graduate studies toward the Ed. D. degree in Vocational and Technical Education at Virginia Polytechnic Institute and State University. He will join the faculty at Old Dominion University, Norfolk, Virginia, effective August, 1974, as Assistant Professor of Vocational Industrial Education.

He is married to the former Linda Louise Christopher of Richmond, Virginia. They were married in June, 1973.



Ned Kent Swartz

EFFECTS OF TRADE EXPERIENCE, TEACHING EXPERIENCE, AND
PROFESSIONAL EDUCATION ON THE CLASSROOM TEACHING
PERFORMANCE OF SECONDARY SCHOOL VOCATIONAL
INDUSTRIAL EDUCATION INSTRUCTORS

by

Ned Kent Swartz

(ABSTRACT)

The purpose of this study was to determine the effects of years of trade experience, years of teaching experience, and semester credit hours of professional education on the classroom teaching performance of public secondary vocational industrial education instructors.

A related problem of the study was to determine the differences in the ratings given by the five groups of raters chosen to evaluate the classroom teaching performance of instructors selected for the study. Ratings were given by (1) school administrators, (2) supervisors, (3) teacher-peers, (4) teachers on a self-rating, and (5) students. Dimensions which separated the groups of raters were named as well as factors emphasized by each.

The following hypotheses were used to test the effects of these variables:

Hypothesis I. Those instructors having low trade experience will receive lower classroom teaching performance ratings than those instruc-

tors having high trade experience.

Hypothesis II. Those instructors having low teaching experience will receive lower classroom teaching performance ratings than those instructors having high teaching performance.

Hypothesis III. Those instructors having low levels of professional education will receive lower classroom teaching performance ratings than those instructors having high levels of professional education.

Hypothesis IV. There will be significant differences in the mean performance ratings of instructors as given by school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

A stratified random sample of 72 instructors, based upon low and high levels of the 3 independent variables, were selected from among a population of 453 instructors of vocational industrial education in Virginia.

Performance ratings were obtained on each of the 72 instructors by mail survey, using performance ratings developed for the study. A total of 406 of the 432 ratings mailed were returned (94 percent).

The study used four statistical analyses to test the hypotheses and assess the findings of the study: multivariate analysis of variance (MANOVA), chi-square, stepwise discriminant analysis, and factor analysis. All hypotheses were tested at the .05 level.

On the basis of these analyses the following conclusions were drawn:

1. Classroom teaching performance of vocational industrial education instructors is not significantly influenced by varying levels of trade experience, teaching experience, and professional education

when ratings by the five groups are analyzed together.

2. Increased trade experience does significantly affect classroom teaching performance when rated by supervisors.

3. Classroom teaching performance is significantly influenced by the interaction effects of high trade experience and hours of education when rated by supervisors.

4. Increased trade experience does significantly influence the classroom teaching performance of vocational industrial education instructors when rated by instructors on a self-rating.

5. Classroom teaching performance of vocational industrial education instructors is significantly affected by levels of professional education when rated by instructors on a self-rating.

6. Instructors with high levels of professional education also have high levels of vocational industrial education.

7. There are no significant differences in the performance ratings of school administrators, supervisors, teacher-peers, teachers on a self-rating, and students.

8. Three dimensions identified as "Teaching Proficiency," "Instructor's Ability to Promote Learning," and "Relationship to Educational Surroundings" separate the performance ratings of the five groups.

9. Administrators, supervisors, and teacher-peers rate similarly when evaluating vocational industrial education instructors. Teachers (self-rating) and students rate differently from the other groups and from each other.

10. Performance evaluation factors can be identified which are common to certain groups and to group clusters.