

AN ABSTRACT OF THE THESIS OF

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Title: A STUDY OF ATTITUDE AND TEACHING PERFORMANCE  
OF DEGREE AND NON-DEGREE TEACHERS IN INDUSTRIAL  
EDUCATION

Abstract approved: *Redacted for Privacy*  
/ Dr. J. Larry Heath

Purpose of the Study

The study was designed to determine whether the amount of formal education industrial education teachers have completed does affect their (1) attitude toward teaching and (2) performance in the classroom. The specific questions formulated to investigate this research were:

1. Will the amount of formal education a teacher has completed affect his attitude toward teaching?
2. Will the amount of formal education a teacher has completed affect his classroom performance?
3. Is there a relationship between a teacher's attitude toward teaching and his performance in the classroom based on the amount of formal education he has completed?

The purpose of this study was to determine if teachers with differing amount of formal education have a varying attitude toward teaching and whether this affects their teaching performance.

The major significance of the study was to investigate whether students taught by non-degree persons are receiving equivalent instruction as compared with those being taught by instructors with a degree.

### Procedure

The selected population of 228 industrial instructors participating in the study were from Oregon's community colleges, secondary schools and skill centers. One hundred forty-nine instructors completed and returned instruments resulting in a 65% return. A total of 140 returns were complete and usable in the study.

The selected variable population groups of instructors were persons having completed 25 or less quarter hours of professional preparation (Ia), those having completed more than 25 quarter hours but less than a baccalaureate degree (Ib), and those who have completed a baccalaureate degree or more (II).

Each of the participating instructors was self-examined with the Vocational Industrial Teacher Attitude Scale (VITAS) to determine his attitude toward his teaching responsibilities. The teachers' classroom performance was student assessed using a questionnaire with questions

designed for this purpose.

Instructors responded individually to the 72 items on the VITAS. Each instructor engaged one of his classes to rate his performance. From these ratings, ten responses were randomly selected for scoring.

### Analysis of Data

The analysis of variance was used to analyze the statistical significance of the hypotheses concerning instructors' attitude toward teaching and performance in the classroom. The Pearson-product moment correlation was run to determine if there was correlation between attitudes toward teaching and rated teaching performance.

### Selected Findings

1. The results of this study indicated there was no difference in attitude toward teaching among the experimental groups. According to the VITAS scores in this study, a baccalaureate degree does not indicate a substantially different or more positive attitude toward teaching industrial education.
2. Based on student assessment of teaching performance, non-degree Oregon industrial education instructors received better ratings than the instructors possessing a baccalaureate degree ( $p < .10$ ).

3. Industrial education instructors having completed more than 24 hours formal preparation but less than a baccalaureate degree had a higher correlation of attitudes toward teaching compared with teaching performance than the two other experimental groups.  
The other groups had very low correlation.
4. This study has produced evidence that Oregon industrial education students taught by non-degree instructors are generally not receiving inferior instruction compared with those being taught by teachers with a baccalaureate degree.

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A Study of Attitude and Teaching Performance  
of Degree and Non-Degree Teachers in  
Industrial Education

by

Alvin Kenneth Pfahl

A THESIS

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# A STUDY OF ATTITUDE AND TEACHING PERFORMANCE OF DEGREE AND NON-DEGREE TEACHERS IN INDUSTRIAL EDUCATION

## I. INTRODUCTION

### Background to the Problem

Since the advent of the Smith-Hughes Act of 1917, Oregon public secondary schools and community colleges have employed certain instructors who are industry prepared and have no formal college or university preparation for teaching. Instructors formally prepared to teach the expanded numbers of vocational classes were in short supply. The technical expertise desired for teaching by some vocational advisory committees and vocational directors in certain cases could only be obtained by recruiting and reorienting persons with no formal preparation from industry to public school teaching.

These teachers reoriented from industry to vocational teaching have a difficult assignment. They must be able to work effectively in the classroom as well as the shop laboratory. Their competence must be respected highly by the engineer, craftsman, businessman as well as by the students and traditionally prepared educators (19:77). The school administrator is confronted with the task of organizing these reoriented persons with the formally prepared faculty into a cohesive organization. The issue is further complicated when values

for their services are established on public school teacher salary scales.

For some time, school administrators will continue being faced with employing non-degree persons for industrial teaching. The Oregon State Plan for the Administration of Vocational Education projects accelerated growth in industrial programs (31:216). Estimates for funding needs for vocational education to 1974 predict dramatic expansion (34:218). At the same time, numbers of personnel and facilities for preparation of degree teachers capable of sharing the educational task remain relatively constant.

Vocational-industrial education has enjoyed improved acceptance recently in the public schools. The emphasis has changed from a concentration on the teaching of skilled crafts to a concern with occupational training in cluster areas. The cluster concept was designed to provide continuity with community college programs. This development has added its impetus to the employment of a very heterogeneous group of industrial education teachers in Oregon. They have wide educational preparation variations from having a degree with little or no industrial preparation to having no formal preparation with extensive industrial experience.

Another factor leading to group heterogeneity was the Oregon Board of Education's vocational education teacher recruitment program in the Portland metropolitan area in 1967-68. The object was to

improve the reorientation process of persons from industry to teaching (47:25). Two subsequent programs with similar objectives have been funded and are operational in Oregon. Little, if any, research exists to encourage or discourage such efforts.

In view of foregoing factors, the status of industrial education teaching in Oregon presented a unique time opportunity for this study.

### The Problem

The problem to be investigated was one of determining whether the amount of formal education industrial education teachers have completed does affect their (1) attitude toward teaching and (2) performance in the classroom. The amount of formal education was determined by the number of quarter hours completed in an accredited institution.

The purpose of this study was to determine if teachers with differing amounts of formal education have a varying attitude toward teaching and whether this affects their teaching performance. This lead to the formulation of some specific questions and the development of a series of hypotheses designed to systematically investigate each question. The population concerned were three groups of instructors prepared with (Ia) less than 25 quarter hours, (Ib) 25 to 192 quarter hours, and (II) 192 quarter hours or more.

## Question #1

Does the amount of formal education industrial instructors have completed affect their attitude towards teaching?

1.0 Ho: There will be no significant difference in the attitude toward teaching among the experimental groups.

1.1 Ho: There will be no significant difference in the attitude toward teaching of Group Ia compared with Group II.

1.2 Ho: There will be no significant difference in the attitude toward teaching of Group Ib compared with Group II.

1.3 Ho: There will be no significant difference in the attitude toward teaching of Group Ib compared with Group Ia.

## Question #2

Does the amount of formal education industrial instructors have completed affect their classroom performance?

2.0 Ho: There will be no significant difference in the classroom performance among the experimental groups.

2.1 Ho: There will be no significant difference in the classroom performance of Group Ia compared with Group II.

2.2 Ho: There will be no significant difference in

the classroom performance of Group Ib compared with Group II.

2.3 Ho: There will be no significant difference in the classroom performance of Group Ib compared with Group Ia.

### Question #3

Is there a relationship between instructors' attitudes toward teaching and their performance in the classroom based upon the amount of formal education they have completed?

3.0 Ho: There will be no significant relationship between the teachers' attitude toward classroom teaching and the students' assessment of their performance in the classroom.

3.1 Ho: For Group Ia there will be no significant relationship between the instructors' attitude toward classroom teaching and the students' assessment of their performance in the classroom.

3.2 Ho: For Group Ib there will be no significant relationship between the instructors' attitude toward classroom teaching and the students' assessment of their performance in the classroom.



3.3 Ho: For Group II there will be no significant relationship between the instructors' attitude toward classroom teaching and the students' assessment of their performance in the classroom.

#### Importance of the Study

The major significance of this study was to investigate whether students being taught by non-degree persons are receiving equivalent instruction as compared with those being taught by instructors with a degree. If this study determines that students taught by degree teachers are benefiting from higher quality instruction, the conclusions then would provide foundation evidence for promoting public investment in the kind of facilities and program that will be capable of supplying the quality and quantity of industrial teachers needed.

#### Research Lacking

Research specifically concerning degree and non-degree Oregon public school industrial instructors' performance is non-existent. Little research exists nationally that compares performance or attitudes of degree and non-degree industrial instructors.

No other segment of public education offers the unique situation in which teaching attitude and performance of degree and non-degree

persons can be studied in a unified status environment. Bjorkquist and others (39:14) presenting at a national invitational research seminar 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 educational courses and other required college courses. In all other teacher education fields it would be relatively impossible to attack this type of problem.

At the same national invitational conference, 20 research areas in teacher certification were identified. One of the researchable problems developed for recommended study was "what evidence is there that a college degree makes a better trade and industrial teacher" ? (39:6).

Research concerning degree and non-degree industrial education teachers will be important to the Oregon educational scene. Oregon school boards are confronted with arriving at equitable salary arrangements considered fair to the degree teacher in relation to the non-degree industrial person reoriented to teaching. Certain non-degree persons now teaching are undertaking ambitious continuing education programs. Research concerning attitudes and performance of industrial instructors will be of use in appraising the values of encouraging or discouraging non-degree persons to pursue obtaining a degree.

Oregon State University has an inservice professional improvement plan for reoriented persons to acquire degrees. Present practice allows no more than 48 quarter hours credit for industrial preparation experience toward a bachelor's degree. There exist variations in practice of this policy in other states' industrial education teacher preparation institutions. This study will produce evidence useful in guidance for determining values concerning this education practice.

#### Projected Personnel Needs

The projected need for industrial education teachers in Oregon continues to amplify. For public secondary vocational teachers, the 1970 level of program is 81 persons. The projected level in 1974 is 274 teachers--a 445% increase! For post-secondary vocational teachers, the 1970 level of vocational teachers is 331. The projected level in 1974 is 442 teachers--a 33% increase (31:216).

The Oregon industrial arts teachers have grown from a 400 member group in 1964 (43:13) to a body exceeding 781 members as listed in the Oregon Industrial Education Association directory for 1970. Allowing for some duplication membership of vocational teachers in the 1970 industrial arts group, this leaves an estimated annual growth pattern of 50 teachers annually from 1964 to 1970. There are no factors apparent indicating a change in this pattern.

The combined vocational teacher projected need in Oregon for secondary and post-secondary is an additional 76 teachers annually. Assuming the same continuing rate of industrial arts expansion, approximately 50 additional degree persons annually will be needed. On this basis the combined industrial arts and trade and industrial teacher need is 126 teachers annually.

A professional estimate of the number of Oregon State University graduates that were certifiable for industrial teaching was 20 in 1968; 30 in 1969; and 40 in 1970. While the pattern indicates increased efforts to recruit and prepare persons for industrial education teaching, there continues to be a demand for industrial teachers in Oregon that is decidedly greater than the number being prepared. Thus Oregon school administrators will continue to be faced with filling industrial education teaching positions with out-of-state degree persons or with non-degree persons. Recruiting from out-of-state presents a problem since an industrial teacher shortage exists nationally (11:38).

#### Assumptions for the Study

The assumptions are as follows:

1. The items on the student assessment of teaching are as valid for secondary school students as for undergraduate college students.

2. The list of secondary schools applying to the Oregon Board of Education for trade and industrial reimbursement February 1970 provided for this study the representative population to study from the secondary school segment of industrial education.
3. The Oregon Community College Association Directory to Personnel in Oregon Community Colleges 1969-70 personnel listings categorized as automotive technology, drafting technology, electronic technology, industrial and mechanical technology, provided the representative population from the community college segment of industrial education.
4. The term teacher and instructor are synonymous.
5. Attitudes are quantitatively identifiable as measured by instruments in this study and can be assigned score values for data processing and analysis.

### Terminology Pertinent to Study

For purposes of this study, the following operational definitions are included to achieve clarity of purpose.

Attitude. Refers to "...a set, a readiness, a predisposition to behave in certain ways toward things in the environment" (25: 5).

Classroom. Classroom refers to the place an industrial teacher teaches; it may be a meeting room, a shop, or a laboratory.

Degree. The term degree was occasionally used as descriptive of a person who has completed a baccalaureate program at a college or university and could be certified, with little or no industrial experience, to teach an industrial course in Oregon public schools.

Experimental Groups. Experimental groups is a term descriptive of the population groups having variable amounts of formal preparation. The term experimental only denotes their participation in the study.

Formal Preparation. Refers to that preparation acquired through college, university, or division of continuing education for credit hours which may be used toward a baccalaureate, master's or doctor's degree program. The term professional preparation is synonymous.

Industrial Education. Industrial education is that education which includes any subject which is necessary to develop the manipulative skills, technical knowledge, and related information such as job attitudes, safety practices, and trade judgments necessary for employment in a trade or industrial occupation (33:91).

Non-Degree. Non-degree is descriptive of a person who has not completed a baccalaureate program at a college or university but has met Oregon certification requirement standards with adequate years of recent occupational experience or by local advisory committee approval.

Professional Preparation. Professional preparation is that preparation gained in college, university, or division of continuing education for credit hours in teaching subject matter and teaching methodology.

Quarter Hours. Quarter hours are units of college or university work in institutions having a quarter calendar. Semester hours were acceptable if equated to quarter hours.

Reoriented Person. Refers to one who has been reoriented from industry to teaching without completing a baccalaureate degree program. He may have little or no formal preparation in educational methodology or subject matter.

Secondary School. A secondary school is a public high school that includes both general education courses and specialized fields of study in its program and thus offers academic, commercial, trade, and technical subjects (20:267). Area vocational schools and occupational skill centers are included as secondary schools.

### Limitations of the Study

This study is delimited to:

1. Industrial-technical instructors teaching electronics, drafting, mechanics, welding, metals, and construction technologies in Oregon secondary schools and Oregon community colleges.
2. Instructors from secondary programs in schools that applied to

the Oregon Board of Education, winter 1970, for matching funds for Trade and Industrial Education.

3. Instructors from Oregon community colleges as specified in the Oregon Community College Association Directory 1969-70 or their replacements.
4. The field of industrial education. This includes some industrial arts as well as trade and industrial education.



## II. REVIEW OF RELATED LITERATURE

It was important in this study to satisfy four major concerns. These concerns may be expressed in the form of questions: (1) Is the recruitment of industrial teachers a national problem? (2) What evidence is there that professional preparation makes a better teacher? (3) Is student rating of instructor performance a valid measure of teacher performance? (4) Is there a relationship between teacher attitude and teacher performance?

This review of literature summarizes the findings of the investigator with respect to these four concerns. To obtain an indication of opinions and evidence of these variables by other researchers and writers, a review of research studies and articles was conducted. Most of the references dealt specifically with industrial education. Pertinent references from general education were included.

### Industrial Education Teacher Recruitment

The growing shortage of industrial teachers has become commonplace news during the 1960's in professional journals and news media. During this decade, the shortage has been an increasing situation.

Erickson and Seuss (11:38) summarize the mid 1960 situation:

The Ohio Superintendent of public instruction quoted in September 23, 1966, issue of Time, called the shortage of industrial arts teachers "horrendous." At the same time, the state supervisor of industrial arts in Indiana compiled a

list of 68 industrial arts laboratories closed because no teacher was available for the 1966-67 school year.

The Mankato (Minnesota) State College placement bureau in 1966 reported a "demand ratio" of 24 to 1 for its industrial arts teacher education graduates . . . The Purdue University office of teacher placement reported that 34 recent industrial arts graduates were available for the 1967-68 school year. These graduates could have selected positions from 365 in state and 1,765 out of state positions. The vacancy to teacher ratio at Purdue was approximately 63 to 1.

Paulter and Buzzell (35:46) charted a growing need for industrial teachers in New Jersey. For the 1970 decade, they projected a need of 2,404 industrial arts teachers and 2,982 trade and industries teachers--a total of 5,386 industrial education teachers. To meet this growing need, Rutgers--the state university of New Jersey--has instituted a cooperative experience in industry combined with a university program for high school graduates to provide another source of vocational technical teachers.

In 1967, the 26 community colleges operating in the state of Michigan reported a need by 20 of these schools for 158 additional teachers in 26 areas of specialization for September, 1967. There was an additional need for industrial teachers in Michigan elementary and secondary schools (49:24).

"California has the largest program of trade and technical education in the nation, and it is growing rapidly. . . California has more trade and technical teachers than any other state." Records in 1968 indicate there are "approximately 2,500 teachers with full-time

credentials (excluding industrial arts) teaching in California schools, and more holding part-time credentials." About 400 teachers obtained full-time credentials in trade and technical education in 1967. Reinhart believes that "the infusion of this group of teachers into institutions of public education in California is destined to influence the character of public education and the composition of its teaching personnel" (40: 300).

In 1964 Venn (50: 151) highlighted the industrial teacher recruitment problem when he said: "One of the greatest handicaps to the improvement and expansion of vocational and technical education is the desperate shortage of qualified teachers and administrators".

Wolansky writes (54: 31) that "recent efforts to provide more vocational and technical training at the secondary and post-secondary levels have created a massive demand for technically and professionally competent teachers. The demand has outstripped the college output."

In synthesizing research concerning recruitment and selection of industrial teachers, Tuckman (48: 43) states "the problem is in recruitment and the number of teacher education programs! There simply are not enough teachers."

### Industrial Teacher Preparation

Public school industrial education teaching is unique in that all the teachers are not traditional products of college or university

teacher preparation. Many of these persons have acquired their subject area competence on the job rather than in school. Teaching is a second career for many of them (40:306). While this alternative is unique to the industrial field, it is common nationally. Industrial teachers that have entered public school teaching are faced with certification rules which press them to acquire some formal education preparation (40:2).

#### Degree Considered Important

Industrial teacher educators are divided on the issue whether a person would do as good a job of teaching if he were not to have had the professional education courses. In a survey, Fagan (12:33) found that 36% of teacher educators favored a two year degree as a minimum for all trade and industry teachers and 50% were opposed. Fifteen percent had no opinion.

Storm (46:74) surveyed 354 post-secondary institutions in 44 states and Commonwealth of Puerto Rico to evaluate their full-time technical instructors having a minimum of two years teaching experience. The ratings of instructors were made by directors of technical education programs. He concluded that the high success teachers had more advanced degrees in education among them than were among the low success group.

Musgrove (30:2546A) conducted a study among 210 vocational

electronics teachers in which the variable of college training and technical training was compared to their teaching effectiveness. Ratings by students, teacher-self, and supervisors indicated that there was no significant relationship between the amount of electronics technical training and subsequent rated teacher effectiveness. Musgrove concluded it appeared that a simple measure of the quantity of electronic technical training is not likely to be indicative of teacher effectiveness in teaching electronics.

Gleaser (18:4) reports that the American Association of Junior Colleges is encouraging a number of universities to establish programs for the preparation of junior college teachers in academic and occupational fields. It is their belief that "teachers of vocational technical subjects must be able to translate both occupational and university experience into course content understandable to vocational students." They favor a bachelor's degree supported by relevant industrial experience for technology instructors.

#### Professional Inservice and Coursework

Brantner (2:57) concluded from research study that years of work experience in a trade or technology caused more significant differences in subject matter than did professional in-service education. Evidence indicated professional preparation and vacancy of work experience caused more significant differences in preferred practices

in subject matter than professional in-service education.

Feirer (14:19) states

today there is little evidence what method is the best way to prepare trade and industrial teachers. While most teachers come directly from industry and have a few hours of professional education, a much smaller number are prepared under a cooperative college program in which the teacher gets both trade experience and professional experience as an integrated degree program. To date (1968) there is no evidence to indicate which of these teachers makes the best record on the job.

Silvius and Wolansky (42:58) state that:

The reoriented persons 'soon' realize that they need more than technical competence and practical experience to teach in a specialized field. They learn that they need to be well prepared to (1) develop and organize teaching materials (2) develop a course of study (3) prepare instructional materials (4) plan a laboratory (5) counsel students, and (6) present the content as it relates to their high level of specialization of experience.

#### Studies from General Education

While no studies have been located that relate performance and attitude to formal preparation within the industrial education field, there are two studies in general education which indicate formal preparation has positive effect on teacher effectiveness.

Stapley (45:42) reports in a study conducted by the Indiana School Superintendents Association that in the opinion of school administrators surveyed "superior teachers have more college training and more preparation in professional education courses than do inferior

teachers." From a study in which students viewed the qualifications of their teacher, Drayer reports (10:41)

that students in a college for men think the most successful instructors are those who use effective teaching methods, who are familiar with acceptable evaluation and grading procedures, and who understand their pupils and their problems. The most unsuccessful ones were those who lacked those qualifications.

He concluded "that knowledge of professional education should contribute to success in college teaching."

#### Non-Degree Teachers' Performance Not Different than Degree Teachers' Performance

Popham (36:16) directed two studies which indirectly explain why many non-degree industrial educators can perform successfully in public school teaching. His first project was undertaken to develop and validate a method of assessing teacher competence through the use of a performance test. In the first study he paired six professionally trained experienced student teachers with six housewives for a six-hour teaching period. The second study involved 13 regularly credentialed teachers and 13 college students for a four-hour teaching period. "In neither case did the teachers perform significantly better than the non-teachers." In a third study he paired 28 auto mechanics teachers and 28 non-teachers to instruct over 1,200 pupils while 16 electronics teachers and 16 non-teachers instructed over 700 pupils. Comparisons of pupil performance data revealed no systematic

differences between teacher and non-teacher group of either auto mechanics or electronics. These results were attributed to the great subject matter orientation in professional teacher preparation and near absence of behavioral modification change skills. "The experienced teacher is simply not more experienced at modifying learner behavior" (36:19-20, 28).

Popham's studies do evidence that these non-teacher persons, as a group, have an equal qualification to positively modify student behavior as the professionally prepared teacher.

### Student Rating of Teacher Performance

To establish student ratings of instructor performance as an acceptable means of measuring that performance it was necessary to satisfy three concerns. These concerns may be expressed in the form of questions: (1) Is student rating of teaching an acceptable measure in both secondary school and college? (2) Do grades assigned by teachers affect student ratings? (3) Does unfavorable student attitude toward a class appreciably affect ratings of instructors by their students? This review of literature summarizes the findings of the investigator with respect to these three questions.

### Secondary Schools

Viewing the secondary school situation, Owen (34:62-63) states,



"The best test of a teacher is the mass judgment of the pupils." He considers this far more valid than the judgment of a principal, a chairman, or a peer. The students are in a position to have far more evidence than anyone in the system. Considering objections to student rating of teachers, Owen concludes that "Better than anyone else, they know who is having an effect on them." He also contends that "no one gets by on entertainment alone. The entertainer almost always has a solid teaching foundation." Lyndough (28:100) states "Educational authorities believe that a student can tell when he has a good teacher."

Referring to rating of high school teachers, Delaney states (8:223) "The most efficient and effective method is for the instructor to mimeograph some type of instructor evaluation form, having the students complete the form . . .". Albert (1:273) involved approximately 1,500 San Antonio, Texas, high school students in an analysis of teacher rating by pupils. This study revealed that "student raters were able to agree on the identification of effective teachers in the system." Wilshaw (52:21) states that "students are some of the best judges of how effective their teachers are and thus should be involved in the evaluation process."

Bush and Allen (6:6) in operating a micro-teaching clinic at Stanford University, summer 1963, "found that student ratings of teacher effectiveness were the most stable and reliable ratings of

teacher performance--including those of supervisors." Ray (37:92), in studying the relationships of student estimates of teacher concern to teaching effectiveness, concluded the reliability of students' estimate of teacher concern was unusually high. This was a highly consistent measure to discriminate among teachers of varying degrees of effectiveness.

### Colleges and Universities

Student ratings of teaching have been used more in the junior colleges, universities and colleges than in earlier grade levels of education. In 1968, Bryan (4:201) reported a survey of 416 institutions with enrollments of more than 1,500 students each. Of the 307 responding, 49% currently had a plan by which students rated teachers and 15% were considering adopting such a plan. An inquiry by Mueller (29:287) indicates that of 804 colleges, student ratings were used in nearly 40% and an additional 32% were considering their use at the time he conducted the survey (1951).

In another study attempting to measure college instructor behavior, Fahey (13:3-4) reports that "college students continued to be reliable in their descriptions of instructors." This was consistent with previous research findings. Bryan (3:659) concluded in a study that

since students themselves are a primary and ultimate

source of information on their own opinion, we must accept their opinions as valid. Where there is no higher authority through which their appeal can be made, their verdicts concerning their opinion are therefore, as valid or as true as they are reliable. Here is one situation in which it can be said that validity is synonymous with reliability.

Dillman (9:62) adds "students expect quality in the classroom and have scant respect for teachers or courses where standards are doubtful."

#### Influence of Grades on Student Ratings

Rayder (38:11) reports in a study that student ratings are not influenced even by variables such as grades previously earned from the instructor being rated. Voecks and French (51:334) report that:

Apparently high ratings cannot be 'bought' by giving high grades, nor are they lost by giving low grades. Both when judging their instructors overall as a teacher and when rating his skills in specific respects, such as clarity of presentation and development of interest, the students rarely if ever, were influenced by the grades which they had received from that teacher. College students appear to have greater objectivity and less superficial value systems than we had realized.

#### Unfavorable Attitude Toward Class Has Little Effect

Hayes (22:75) reports a study of classroom teaching effectiveness that an unfavorable attitude toward a required course does not appear appreciably to affect ratings given instructors by their students. Seventy percent of the students with unfavorable course

attitudes gave their instructors above average ratings.

### Summary of Student Rating of Teacher Performance

Three conclusions of importance to student rating of teaching were drawn from the foregoing review of literature. The first was that researchers do consider student rating of teaching as an acceptable measure in both the secondary school and the college. The second conclusion was that grades assigned by teachers do not affect student ratings of teacher performance. The third conclusion was that unfavorable student attitude toward a class does not appreciably affect ratings of instructors by their students.

### Relationship of Teacher Attitudes to Teacher Performance

The actions of an individual are governed to a large extent by his attitudes (24:146). Yee (55:1) states that a classroom teacher's attitude toward his pupils and teaching as a career significantly affect his behavior with his pupils and teaching associates. Conversely, the pupil's attitudes towards his teacher and school in general significantly affect his behavior in the classroom. Research by Bush (5:188) concludes that teacher's verbal expression of liking for pupils may be unrelated to his professional competence but the findings suggest that the teacher's personal liking for his pupils is one of the most powerful

factors in bringing about an effective learning relationship between the teacher and the pupil. Kerlinger and Pedhauser (25:207) found that progressive teacher attitudes toward education were positively and consistently correlated with person-oriented teacher trait perceptions. Traditional attitudes toward education were similarly correlated with task-oriented teacher trait perceptions.

Evidencing a relationship between teaching attitude and teaching performance, LeBue (27:434) states:

The Minnesota Teacher Attitude Inventory is designed to measure the attitudes of a teacher or a prospective teacher which predict how well he will get along with pupils in interpersonal relationships and indirectly how well satisfied he will be with teaching as a profession. When correlated with such criteria as pupil ratings of the teacher, it has consistently produced validity coefficients between .50 and .63.

Cook et al. (7:278) concluded in a study that Minnesota Teacher Attitude Inventory (MTAI) scores correlate years of college preparation.

Elementary school teachers with four years of college made attitude scores twice as high as teachers with only two years of college preparation. A fifth year of study increased the scores markedly. High school teachers with four years of college achieved attitude scores about the same as elementary teachers with two years of preparation. A fifth year of study brought them to the level of the four year elementary teachers. . . Secondary school teachers with low scores on the MTAI consistently tended to have high rates of pupil

failure . . . Fifty high school teachers liked best by their pupils made MTAI scores twice as high as fifty teachers liked least.

### Summary of the Literature

Four conclusions of importance to the present study were drawn from this review of literature. The first was that there exists a national problem in recruiting, selecting, and qualifying industrial education teachers. The Oregon situation appears to parallel the national problem and is not an isolated circumstance.

The second conclusion was that administrators and teacher supervisors favor the degree as important in teacher preparation. However, when student learning is measured in specified behavioral objectives, no evidence was found that indicated the degree person had any advantage over the non-degree person.

The third conclusion was that student rating of teacher performance is considered to be a valid measure. It is considered to be a measure more valid than ratings made by administrators, supervisors, or peer teachers.

The fourth conclusion was there exists a belief among professional educators that there generally exists a positive relationship between teacher attitude and teacher performance. Studies by educational researchers using the MTAI indicate these scores tend to correlate positively to teaching performance.

### III. DESIGN OF THE STUDY

The following is a summary of the design and procedures employed in the study. The summary features the steps taken throughout the investigation.

#### Population of the Study

The population consisted of industrial educators from Oregon secondary schools and Oregon community colleges engaged in teaching classes in electronics, drafting, mechanics, welding, metals and construction technologies.

The population of persons from the community college pertinent to this study was the contained list in the 1969-70 Oregon Community College Association directory (32:11, 12, 13, 14, 15, 19 and 20) listed under automotive technology, drafting technology, electronic technology, industrial and mechanical technology. The total listed community college population mailed instruments was 107 instructors.

The secondary school population was teachers teaching industrial education courses in schools requesting funding assistance for trade and industrial programs from the Oregon Board of Education, February 1970. The population of teachers was from both state funded and non-funded vocational programs. Instruments were mailed or delivered to a total of 121 secondary industrial education instructors.

### Selected Groupings

The population groups investigated were the following three categories of certified industrial teachers:

- Ia. Those persons having completed not more than 25 quarter credit hours of formal course work. (Group Ia).
- Ib. Those persons with more than 25 quarter hours but less than 192 quarter credit hours. (Group Ib).
- II. Those persons who have completed 192 quarter hours or more and hold a baccalaureate degree. (Group II).

### Procedure

The procedure was to invite each person in the selected population to examine himself with the Vocational-Industrial Teacher Attitude Scale (VITAS) (16:1-6) (Appendix A) to assess his attitude toward his teaching responsibilities. The teacher's classroom performance was student assessed by one of the teacher's classes using a questionnaire designed for this purpose (Appendix A). For each instructor, the scores were compiled and recorded according to population category.

### Collection of Data

The following steps were followed in the collection of data:



1. The instruments were professionally printed as exhibited in Appendix A.
2. Mail out packets were assembled to contain one form of the VITAS and 20 Surveys of Student Opinion of Teaching forms. A pre-addressed stamped envelope for first-class mailing was enclosed for return of completed instruments.
3. A personal letter was mailed to 48 high school principals and to 12 community college presidents or deans of occupational education requesting permission to mail instruments to instructors in their respective organizations. The instructors were those certain persons from the selected population. In cases where schools had two or more instructors in the population and did not return the mailing request, a telephone call was made to secure permission.
4. As permission was received, the instruments were sent to each instructor by first-class mail. Direct mailing was used to all but three institutions. At Mt. Hood Community College, Clackamas Community College, and the Occupational Skills Center, Milwaukie, Oregon, a key person in each organization delivered the packaged instruments to the instructors and later collected the completed packaged instruments.
5. If a packet was not returned in two weeks, a follow-up letter was mailed (Appendix A). This letter urged participation and

established a May 20 cut-off date. Three institutions granted permission late during the data collection period. To these instructors a note was enclosed advising the early cut-off date and an apology for the limited time in which to participate.

### Data Collecting Instruments

Two instruments were involved in the collection of data.

#### Vocational-Industrial Teacher Attitude Scale

The instrument used to collect the data concerning teacher attitudes was the Vocational-Industrial Teacher Attitude Scale (VITAS): Preliminary data 72 item scale.

VITAS Item Reliability was computed using the analysis of variance technique. This method is equivalent to the Kuder-Richardson #20 coefficient. Reliability obtained for a group of eighty-two in-service vocational teachers was .80. The mean intraitem correlation was .05 (16:1).

VITAS scores from seventy-two of the eighty-two teachers were compared with Minnesota Teacher Attitude Inventory scores using the Pearson-product moment correlation. The resultant correlation between scores was .47 ( $p < .01$  with 80 degrees of freedom) (16:1).

Finch reported that the relationship ( $p < .01$ ) was significant between the VITAS and the Minnesota Teacher Attitude Inventory indicating the instruments were measuring something in common. The correlation (.47) was substantial enough to assume "that some

similar, but not identical, attribute was being measured by each instrument" (15:62).

Certain items of the VITAS were peculiar only to the secondary school environment. A modification of the VITAS was developed to reflect the community college environment. Wendell L. Reeder, Dean of Curriculum, Clackamas Community College, Arnie Heuchert and Ronald Kaizer, Deans of Occupational Education respectively at Mt. Hood Community College and Clackamas Community College acted as knowledgeable consultants to determine wording which, in their opinions, retained the validity and reliability of the instrument for use in the community college setting.

### Survey of Student Assessment of Teaching

Teaching performance was measured by an 11 question Survey of Student Assessment of Teaching. The first ten questions, with only one modification, are those questions developed out of continuous research since 1925 at the University of Washington. These ten items on the rating form

show the highest relationship with over-all judgments of teaching effectiveness . . . Research shows that there is a direct statistical relationship (correlation range: .70 to .84) between the ratings on the ten items and the students' perception of the degree of help in understanding received from the instructor . . . Correlations between the scores on the ten items and the question by which the students' increased interest was assessed varied from .54 to .86 (26:23). In other words, the ten items are

closely related to students' reports that their understanding and interest in a subject matter has been increased by the teacher. Both content and the phrasing of these items should be noted: They deal chiefly with the instructor's lucidity and his ability to broaden the students' knowledge and interest, and most of these are phrased in such a way as to bring the student into the evaluation (28:389).

Guthrie reported "underclassmen and graduate students tend strongly to agree in their over-all evaluations of teaching effectiveness" (resultant correlation .73) (21:4). Her research was part of the program developing the above mentioned ten questions.

The same ten items were used for three semesters with approximately 80 students to assess teaching in a public high school industrial education program. Only one question presented a problem to secondary students. It was "Interprets abstract ideas and theories clearly." The word 'abstract' was repeatedly questioned by students. Deleting this word from the item made the ten items usable for all levels of secondary students. The student assessments of teaching closely paralleled administrative opinions of teaching. No analysis was made to measure validity of the opinions of the administrators.

One item was added to reflect a major objective of industrial-vocational education. This was a concern of occupational goal selection leading to eventual job placement (41:417). The item was #11-- 'has helped me select an occupation.' It was intended that this item would reflect data that would counterpoise the atypical nature of industrial education compared to general education.

### Data Processing

The VITAS 72-item Likert-type scale was designed to elicit attitudes of industrial educators toward teaching. The attitude values were on a continuum from strong agreement to equally strong disagreement. An undecided attitude occupies a neutral or middle position on the continuum.

### VITAS Scoring Procedure

The scoring on each item of the VITAS was a scale from one to five. Agreement responses that indicated a positive position with respect to those concerning industrial-vocational teaching attitudes were scored as follows:

	Scale Value
a. Strongly agree	5
b. Agree	4
c. Undecided	3
d. Disagree	2
e. Strongly disagree	1

Agreement responses that indicated a negative position with respect to the item concerning industrial-vocational teaching items were scored as follows:

	Scale Value
a. Strongly agree	1
b. Agree	2
c. Undecided	3
d. Disagree	4
e. Strongly disagree	5

The greater the total score, the more positive the measured attitude. Whether an attitude question has a positive position or negative position is indicated by the key placed with the VITAS instrument in Appendix A. When instructors failed to mark an item in the attitude scale, the score was tabulated as a neutral.

The items were designed in a mixed manner to prevent response set from occurring. The respondent who answered mechanically would have been clearly identifiable. No response set was observed.

The total sum of score numbers assigned responses comprised the raw attitude score data for each teacher. The higher the total score, the more positive the attitude was considered for industrial teaching.

### Scoring Student Assessment of Teaching

The Student Assessment of Teaching was designed to elicit assessments of performance of teaching behavior. The numerical scale was assigned the following values.

	Scale Value
a. Outstanding	1
b. Superior	2
c. Competent	3
d. Only Fair	4
e. Of Less Value	5

Twenty copies of the Survey of Student Opinion of Teaching were included to each instructor. The study was based on a random sampling of ten opinions of teaching per instructor. The directions to each instructor were to have students in one of his classes complete the Student Survey of Teaching form. He was directed to select a class in his major teaching area where ten or more were enrolled. If more than 20, the first 20 present on the roll were to do the survey. If less than ten, two classes were to be used.

A list of random numbers was assembled by opening a statistics book (44: 543) to a random table. Pointing blindfolded to a position on the page, column 10-14 row 07 using last two digits, the following random numbers from 00 to 19 appeared vertically down: 06, 15, 18, 07, 11, 19, 09, 10, 00, 08, 05, 14, 02, 01, 16, 12, 03, 17, 04, and 13. As the Student Surveys of Opinions of Teaching were taken from the envelope face up, they were numbered consecutively from 00 to their total or 19. Then the above random sheets as numbered were selected in the order of the chosen random numbers to assemble ten

response sheets to be scored. If any sheet had an omission or irregularity, it was replaced by the next unused random number on the random list.

Classes in which only nine students were surveyed were equated to ten by calculating an average of the nine surveys. This single average was rounded to the nearest full number and added to the total score of the nine equating it to a return of ten random surveys. If eight or less surveys were returned, all data from that instructor and his class were excluded from the study.

The ten random assessment sheets from each instructor were tallied into a sum of the numerical scale values. The lower the total score, the more outstanding was the measured teaching performance.

The data from both instruments was scored manually. The individual scores were processed on to computer cards to assist in statistical analysis.

#### Analysis of Data

Two basic statistical tools were employed during the study:

(1) The analysis of variance and (2) Pearson-product moment correlation.

The analysis of variance was used for hypotheses 1.1, 1.2, 1.3, 2.1, 2.2, and 2.3. Comparison of variance for each group was made coming out with an F test to determine if the greatest variance



existed between the (1) non-degree and degree groups, (2) the intermediate and degree groups or (3) the non-degree and intermediate groups.

Data compiled from the Survey of Student Opinion of Teaching was statistically analyzed to determine if question eleven, 'Has helped me select an occupation' was compatible to the first ten questions used to determine teaching performance. This was prompted by the numerous student complaints written on returns concerning item eleven. Many felt it was irrelevant since they had decided this question prior to entering this instructor's class. Students frequently omitted this item. Observed scores on this item often were directionally very different as compared to the pattern of responses to the first ten items.

The data was collected for both the total score on eleven questions and the total score on ten questions. The statistical test used was the paired t test. The reliability and validity of the first ten items on the Student Survey of Opinion of Teaching was established by French (17:35-37).

The Pearson-product moment correlation was run to ascertain if there was a relationship between self-assessed attitude toward teaching and student-assessed teaching performance. This applied to hypotheses 3.1, 3.2 and 3.3.

#### IV. ANALYSIS OF DATA

The problem investigated in this study was to determine whether the amount of formal education industrial education teachers have completed does affect their (1) performance in the classroom and (2) attitude toward teaching. The purpose of this study was to determine if teachers with differing amounts of formal education have varying attitudes which affect their performance in the teaching situation.

Teaching performance was established by a survey of student opinion of teaching. Attitude toward teaching was established by teacher self-administration of the Vocational-Industrial Teacher Attitude Scale: Preliminary Data developed at Pennsylvania State University.

Instruments were mailed first-class or delivered to 107 community college instructors and 121 high school industrial education instructors. One hundred forty-nine instructors completed and returned the instruments by the cut-off date resulting in a 65% return. Nine sets of data were unusable in the study. Eight returns were only partially complete lacking essential information. One return was from an area of instruction excluded by the limitations of this study.

##### Analysis of Variance of Attitude Toward Teaching

A one-way analysis of variance was used to determine if significant attitude differences existed among Oregon industrial education

instructors with respect to the variable of formal education preparation. The three null hypotheses were not rejected. Using the one-way analysis of variance, an F value of 0.27 was obtained as shown in Table 1. With 2 and 137 degrees of freedom, the F value indicated no significance at or below  $p < .25$  indicating that no significant difference existed among the experimental groups. Significance having  $p < .25$  was considered to have implications in this research since this study involves an unresearched area and the probability of making a type 1 or type 2 error is greatly increased (57:9). Therefore, Ho: 1.0 "there will be no significant difference in the attitudes toward teaching among the experimental groups," is not rejected. Since the F test indicated no significant variation among the groups, no further tests were warranted on the following sub-hypothesis concerned with the variation between groups. Therefore, Ho: 1.1 "there will be no significant difference in the attitudes toward teaching of group Ia compared with group II," Ho: 1.2 "there will be no significant difference in the attitudes toward teaching of group Ib compared with group II," and Ho: 1.3 "there will be no significant difference in the attitudes toward teaching of group Ib compared with group Ia" were not rejected.

Table 1. One-way Analysis of Variance for Self-Assessed Attitude Toward Teaching Differences Existing among 140 Oregon Industrial Education Teachers Based on Variable of Formal Education.

Source of Variation	d. f.	MS	F
Among groups	139	0	0
Three levels of education	2	70.31	.27*
Error of Variance	137	255.82	

\*Not significant.

Test of Significant Difference Between the Means of  
Items One Through Ten Compared to Items One  
Through Eleven on Survey of Student  
Opinion of Teaching

On the Survey of Student Opinion of Teaching, item number eleven 'Has helped me select an occupation' was analyzed to determine if it was measuring something in common with questions one through ten using the paired t test. Langen (26:33) reports that French previously determined "there is a direct statistical relationship (correlation range: .70 to .84) between the ratings on the ten items and the students' perception of the degree of help in understanding received from the instructor."

Item eleven deserves investigation for several reasons. It was added to an instrument involving items having significant correlation to instructor performance. Second, during data collection this item

was repeatedly questioned or challenged by student respondents. Their responses were often opposite in comparison to the first ten items. The noted direction was usually negative--frequently extremely negative.

Comparing the means of the ten items in the total population to the means of the eleven items, the mean difference was -0.85 with a 0.53 standard deviation and a t score of 18.811, as shown in Table 2. Using as t critical  $t_{.001} = 3.36$ , 139d.f., item eleven definitely was measuring something not in common with the first ten items ( $p < .001$ ). With this apparent difference in score, further comparison was made to determine if this difference varies with the population groups.

Table 2. Test of Significance for the Difference between the Means of the One through Ten Items Compared to the One through Eleven Items on the Survey of Student Opinion of Teaching.

Population	d. f.	Mean D	Standard Deviation	Paired t Score
Total	139	-0.85**	.53	18.811*
Ia	24	-0.83	.44	9.282*
Ib	44	-0.85	.42	13.165*
II	69	-0.86	.62	11.465*

\*Significant  $p < .001$

\*\* - Indicates direction to 11 group

Comparing the mean of the first ten items for group Ia to the mean of the eleven items, the mean difference was -0.83 with a 0.44

standard deviation and a t score of 9.282. Using as critical,  $t_{.001} = 3.74$ , 24d.f., the t score clearly indicated for population Ia that item eleven was measuring something not in common with the first ten items. The data for population Ia was very similar to that of the total population.

Comparing the mean of the first ten items for group Ib to the mean of the 11 items, the mean difference was -0.85 with a 0.42 standard deviation and a t score of 13.165. Using as critical,  $t_{.001} = 3.53$ , 44d.f., the t score clearly indicated for population Ib that item 11 was measuring something not in common with the first ten items. The data for group Ib was very similar to that of the total population.

Comparing the mean of the first ten items for group II to the mean of the 11 items, the mean difference was -0.86 with a 0.62 standard deviation and a t score of 11.465. Using as critical,  $t_{.001} = 3.43$ , 69d.f., the t score indicated for group II that item 11 was measuring something not in common with the first ten items. The data in group II is very similar to that of the total population.

The similarities of the various groups to the total population indicated that outcomes of the paired t test between the ten item and 11 item test indicated the effect of item 11 to be about equally negative in each of the population groups. The negative effect of item 11 measured to be closely the same for each group.

The most frequent unsolicited response to item 11 centered on the idea that the respondent had selected his present occupational choice prior to enrolling with the instructor he was rating. Thus many respondents rated their instructor at 'of less value' because he had no influence in this choice. Yet, the ratings given in the first ten items indicated the instructor to be superior or better in classroom performance.

Considering the uniform significant effect ( $p < .001$ ) supporting the aforementioned observations, further analysis of teaching performance in this study will be based on the first ten items. Implications of item 11 will be discussed independently in the summary.

#### Analysis of Variance of Teaching Performance

The one-way analysis of variance was used to determine if significant differences existed in student assessed teaching performance of Oregon industrial education instructors with respect to the variable of formal education preparation. The hypothesis were stated in the null form.

The F value of 1.91 was obtained with 2 and 137 degrees of freedom as shown in Table 3. The F value has significance  $p < .25$  ( $t_{.25} = 1.40$ ). Significance having  $p < .25$  is considered to have implications in this research since this study involves an unresearched area and the probability of making a type 1 or type 2 error is greatly increased

(53:9). The F value of 1.91 indicates there was some variation in assessed performance among the groups. Therefore, hypotheses 2.0 "there will be no significant difference in the classroom performance among the experimental groups" was rejected. A test of significance for the difference between performance means was run between the experimental groups.

Table 3. One-Way Analysis of Variance for Teaching Performance Existing among 140 Oregon Industrial Education Teachers Based on the Variable of Formal Education.

Source of Variation	d. f.	MS	F
Among groups	139	0	0
Three levels of education	2	3253.49	1.91*
Error of variance	137	1704.07	

\*Significant  $p < .25$

The data is shown in Table 4. The Student t score for group Ia as compared to group II was 1.77. With 93 degrees of freedom the t has significance at  $p < .10$  ( $t_{.10} = 1.66$ ). Therefore, hypothesis 2.1 "there will be no significant difference in the classroom performance of group Ia compared with group II" was rejected.

The Student t score for group Ib as compared to group II was 1.79. With 113 degrees of freedom the t has significance at  $p < .10$  ( $t_{.10} = 1.66$ ). Therefore, hypothesis 2.2 "there will be no significant



difference in the classroom performance of group Ib compared with group II" was rejected. The Student t score for group Ia compared to group Ib was 0.456. This t score was not significant. Therefore, hypothesis 2.3 "there will be no significant difference in the classroom performance of group Ib compared with group Ia" was not rejected.

Table 4. Test of Significance for Difference Between Performance Means of Oregon Industrial Educator Groups with Varying Amounts of Formal Preparation (ten item sample).

Basic Statistical Information for Performance			
Experimental Groups	n	Mean	Standard Deviation
Group Ia	25	211.24	39.80
Group Ib	45	216.20	47.69
Group II	70	227.64	37.18

Test of Significance for Difference between Means			
Source of Variation		d. f.	Student t score
Mean of	Compared to		
Group Ia	Group II	93	-1.77*
Group Ib	Group II	113	-1.79*
Group Ia	Group Ib	68	-0.456

Note: The lower the mean score obtained, the more desirable the score.

\* $p < .10$

### Correlation of Teaching Attitude to Teaching Performance

The Pearson-product moment correlation was run to ascertain if there was a relationship between self-assessed attitude toward teaching and the student assessed teaching performance. All information pertaining to the measurement of relationships is contained in Table 5. For the total sample of 140 instructors, the self-assessed attitude toward teaching mean was 265.34 with a 15.91 standard deviation; the mean student assessed performance was 221.04 with a 41.55 standard deviation. The Student t was 1.114. With 138 degrees of freedom, the t score indicated that the correlation coefficient of .006 was not significant. Therefore hypothesis 3.0 "there will be no significant relationship between the teachers' attitude toward classroom teaching and the students' assessment of their performance in the classroom" was not rejected.

For group Ia the self-assessed attitude toward teaching mean was 263.72 with an 18.49 standard deviation; the mean student-assessed performance was 211.24 with a 39.80 standard deviation. The Student t was .137. With 23 degrees of freedom, the t score indicated that the correlation coefficient of .029 was not significant. Therefore, hypothesis 3.1 "For group Ia there will be no significant relationship between the teachers' attitude toward classroom teaching and the students' assessment of their performance in the classroom"

Table 5. Pearson-product Moment Correlation of Self-Assessed Attitude toward Teaching Correlated to Teaching Performance of 140 Oregon Industrial Instructors as Assessed by Students.

Basic Statistical Information on Attitude and Performance					
Experimental Groups	n	Attitude		Performance	
		Mean	Std. Dev.	Mean	Std. Dev.
Total	140	265.34	15.91	221.04	41.55
Group Ia	25	263.72	18.49	211.24	39.80
Group Ib	45	266.60	15.55	216.20	47.69
Group II	70	265.11	15.32	227.64	37.18

Correlation Coefficients and Significant Tests			
Experimental Groups	Product-moment Correlation r	Student t	d. f.
Total	.094 ns	1.114	138
Group Ia	.029 ns	.137	23
Group Ib	.289*	1.938	43
Group II	.006 ns	.052	68

Note: The most desired attitude scores are represented by the larger number; the most desired performance scores are represented by the smaller number.

ns not significant

\*  $p < .10$

was not rejected.

For group Ib the self-assessed attitude toward teaching mean was 266.40 with a 15.55 standard deviation; the mean student-assessed performance was 216.10 with a 47.69 standard deviation. The Student t was 1.938. With 43 degrees of freedom, the t score indicated that the correlation coefficient of .289 is significant at  $p < .10$  ( $t_{.10} = 1.68$ , 43 d.f.). The correlation was very nearly significant at  $p < .05$ . Therefore, hypothesis 3.2 "for group Ib there will be no significant relationship between the teachers' attitude toward classroom teaching and students' assessment of their performance in the classroom" was rejected ( $p < .10$ ).

For group II, the self-assessed attitude toward teaching mean was 265.11 with a 15.32 standard deviation; the mean student-assessed performance was 227.64 with a 37.18 standard deviation. The Student t was .052. The Student t with 69 degrees of freedom indicated that the correlation was not significant. Therefore, hypothesis 3.3 "for group II there will be no significant relationship between the teachers' attitude toward classroom teaching and the students' assessment of their performance in the classroom" was not rejected.

## V. DISCUSSION AND IMPLICATIONS

The task of the discussion was to relate the analysis of data decisions concerning the hypothesis to the population groupings. The second task was to relate the analysis of data decisions to implications this information likely has for Oregon industrial teachers and persons concerned with their preparation and administration.

### Discussion

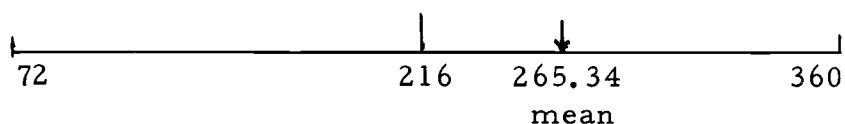
A comparison of the results of this study with the results of Popham (36) and Musgrove (30) tends to confirm their earlier findings that professional college training gained by teachers is of doubtful value in assessing effective industrial education teaching. The following discussion is divided into five main parts. The first part summarizes the findings concerning degree and non-degree industrial education teachers' attitude toward their teaching. The second part summarizes the effect of professional education on performance as rated by their consumers--the students. The third part discusses the correlation of instructors' attitude to instructor performance. The fourth part deals with the vocational-industrial instructor's influence on student occupational decision making. The final part, serendipity, contains some facts and occurrences which the researcher felt are unrelated but relevant to the total study.

### Attitude Toward Teaching

The one-way analysis of variance indicated there was no difference in the attitude toward teaching among the experimental groups. The mean scores of the VITAS for each group, whether degree or non-degree, were similar. With this information, it is inferred that whether an industrial teacher acquired his basic preparation from industry or from a degree granting institution his attitude toward teaching was not significantly different.

It is further interesting to note that for the total population the direction of the mean for the attitude toward teaching was positive. Developing a continuum, the lowest possible negative score could be 72, the highest possible positive score 360, with a midpoint of 216. The mean attitude score of the total sample would be 49.34 points on the positive side of the midpoint. This infers that collectively the industrial education teachers in the sample had a positive attitude toward teaching industrial education.

Table 6. Continuum Position of Teaching Attitude Mean for 140 Oregon Industrial Instructors.



### Teaching Performance

The one-way analysis of variance indicated that significant differences existed in the student assessed teaching performance with respect to the variable of formal education preparation ( $p < .25$ ). The test for significant difference between performance means of Oregon industrial instructor groups indicated that the performance means for both group Ia and group Ib were significantly different than group II ( $p < .10$ ). The direction of the mean scores indicated the non-degree groups, Ia and Ib, received the more desired scores.

Since the attitude toward teaching scores for each experimental group was significantly the same, it could not be determined whether a varying attitude toward teaching affected their teaching performance.

### Correlation of Attitude to Performance

This study failed to produce concrete evidence that amounts of formal preparation progressively increases an industrial teacher's positive attitude toward teaching for group Ia and group II.

Whereas, the data for group Ib indicated that the attitude toward teaching was significantly correlated to the students' rating of their teachers' performance. While this is not a high correlation, it is of interest for several reasons. It is quantitatively a much higher correlation than was obtained for either group Ia or II. Also, while it is

statistically significant at  $p < .10$ , the data very nearly has significance at  $p < .05$ .

These results tend to indicate that continued professional preparation of persons beyond the 25 quarter hours parameter of group Ia has some influence in relating attitude toward teaching to teaching performance as rated by students. The data tends to indicate that for the relationship between attitude and performance the variable of additional formal preparation reaches a point of diminishing relationship with formal preparation at some point below that of a baccalaureate degree. This further leads one to speculate that there may be some other variable than formal preparation affecting the relationship between attitude and performance for this sample population.

Students' Rating of Teachers on "Has helped me select an occupation"

This item on the student opinion of teaching survey resulted in being largely a measure of effective past performance of education and experience. The ratings and unsolicited comments by students indicated it was not a good measure of present teaching performance.

The item continues to be deserving of space in this study since the collective responses to it indicated to this researcher that student occupational choice selection in industrial occupations is a process that generally happens prior to enrolling in a vocational course. This



decision making process, must then, tend to occur during the period of general education and more often is not a result of teaching by a vocational instructor.

### Serendipity

Oregon industrial instructors evidenced a keen interest in this study. Considering the amount of work involved in each response, the 65% return was remarkable. Three industrial educators duplicated the materials; they and their classes responded to them in an effort to join the study. However, since they were not part of the selected sample, these data were not included in the study.

Of the 149 participating in the study, 110 requested a personal mailing of the results of the study.

### Implications

The results of this study indicated that industrial education students being taught by non-degree teachers generally are not receiving inferior teacher performance. Student ratings of performance of non-degree industrial teachers indicate Oregon non-degree industrial instructors compare favorably performance-wise with degree industrial instructors. The instructors' self-assessment of attitude using the VITAS indicated that the attitude toward teaching of degree and non-degree instructors was significantly the same.

This study provides evidence for Oregon school boards and teacher negotiation committees to seek equitable salary schedules for the non-degree industrial instructor equivalent to those scales available to the degree teacher. The non-degree instructor should be recognized for the basic knowledge he has learned in industry. This study has produced no evidence that the certifiable non-degree instructor should be discriminated against because of his lack of a degree.

The results of this study indicate that the state university may be too conservative in the practice of allowing non-degree teachers the opportunity to challenge no more than 48 quarter hours of technical course work toward a baccalaureate degree in industrial education. The attitude toward teaching and teaching performance data evidences implications that some of the teaching pedagogy courses could possibly be challengable.

The results of the relationship between attitude toward teaching and teaching performance indicates there is value in non-degree instructors completing professional preparation beyond the 25 hour parameter arbitrarily selected in this study. The results tend to support the credence of some educational institutions to continue offering encouragement to non-degree persons to complete an associate degree in their teaching field.

## VI. SUMMARY AND CONCLUSIONS

### The Problem

The study was designed to determine whether the amount of formal education industrial education teachers have completed does affect their (1) attitude toward teaching and (2) performance in the classroom. The amount of formal education was determined by the number of quarter hours completed in an accredited baccalaureate degree granting institution. The specific questions formulated to investigate this research were:

1. Will the amount of formal education a teacher has completed affect his attitude toward teaching?
2. Will the amount of formal education a teacher has completed affect his classroom performance?
3. Is there a relationship between a teacher's attitude toward teaching and his performance in the classroom based on the amount of formal education he has completed?

The purpose of this study was to determine if teachers with differing amount of formal education have a varying attitude toward teaching and whether this affects their teaching performance.

The major significance of the study was to investigate whether students taught by non-degree persons are receiving equivalent instruction as compared to those being taught by instructors with a degree.

### Procedure

The selected population of instructors participating in the study was from Oregon's community colleges, secondary schools and skill centers. One hundred forty-nine instructors completed and returned instruments by the cut-off date resulting in a 65% return. A total of 140 returns were complete and usable in the study.

The selected experimental groups were categorized as follows:

Group Ia: instructors that have completed 25 or less quarter credit hours of formal course work (non-degree).

Group Ib: instructors that have completed more than 25 quarter credit hours but less than 192 quarter credit hours (non-degree).

Group II: instructors who have completed 192 quarter credit hours or more and hold a baccalaureate degree (degree).

Each of the participating instructors was self-examined with the VITAS (16:6) to determine his attitude toward his teaching responsibilities. The teachers' classroom performance was student assessed using a questionnaire with questions designed for this purpose (Appendix A).

Instructors responded individually to the 72 items on the VITAS. Each instructor engaged one of his classes to rate his performance.

From these ratings, ten responses were randomly selected for scoring. The pertinent data was entered on computer cards.

### Analysis of Data

The analysis of variance was used to analyze the statistical significance of the hypotheses concerning instructors' attitude toward teaching and performance in the classroom. The Pearson-product moment correlation was run to determine if there was correlation between attitudes toward teaching and rated teaching performance. The statistical analysis was accomplished by computer programming.

### Summary of Findings

1. The results of this study indicated there was no difference in attitude toward teaching among the experimental groups. According to the VITAS scores in this study, a baccalaureate degree does not indicate a substantially different or more positive attitude toward teaching industrial education.
2. Based upon the scores of the VITAS, Oregon industrial education instructors collectively had a positive attitude toward teaching.
3. Based on student assessment of teaching performance, non-degree Oregon industrial education instructors received better ratings than the instructors possessing a baccalaureate degree.
4. Industrial education instructors having completed more than 25

hours formal preparation but less than a baccalaureate degree had a higher correlation of attitudes toward teaching compared to teaching performance than the two other experimental groups.

The other groups had a very low correlation.

5. This study has produced evidence that Oregon industrial education students taught by non-degree instructors are generally not receiving inferior instruction compared with those being taught by teachers with a baccalaureate degree.
6. Vocational-industrial teachers are generally not key persons in student selection of occupational choice. This process, then, must most generally occur prior to enrolling in a vocational-industrial course.

### Conclusions

1. For Oregon industrial education instructors there was no significant difference in their attitude toward teaching based on the variable of formal education completed.
2. The amount of formal education a teacher has completed does affect his classroom performance. The non-degree groups received the more desirable performance scores.
3. Teachers with less than a baccalaureate degree but have completed 25 or more credit hours of professional preparation are more likely to have classroom performance that varies as their

attitude toward teaching varies.

### Recommendations

The prime purpose of this study was to determine if instructors having differing amounts of formal preparation have a varying attitude toward teaching and whether this affects their teaching performance. The results, although not as conclusive as they might have been had the sample been larger, do indicate some trends which may be profitably pursued. The following recommendations are offered to assist further research in this area:

1. The study should be repeated in other industrial instructor populations to verify the findings of this study.
2. Similar studies should be done using other acceptable attitude and performance measures.
3. A similar study should be done using years of industrial experience as the variable.
4. A continuation of this study would be valuable to determine whether the non-respondents' attitude and performance scores would have changed these results.
5. A continuation of this study should be done to do an item analysis of the items on the survey of student opinion of teaching.
6. The outcome of this study indicates teacher educators should

plan, encourage and assist future industrial education teachers to gain industrial experience as part of their professional preparation for industrial teaching.

7. Teacher educators and educational researchers need to search in concert for the behavior variables that hopefully can conclusively identify potential teachers. The time-honored existing process of determining who is certifiable to teach will be increasingly questioned.



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## APPENDICES

APPENDIX A  
INSTRUMENTS

Attitude Surveys, Key, Letter of  
Request, Permission Forms, and  
Follow-up Letter.

A Study of Attitude and Teaching  
Performance of Degree and Non-degree Teachers  
in  
INDUSTRIAL EDUCATION

April, 1970

Dear Industrial Educator:

As a doctoral student of Oregon State University, I am conducting a dissertation study designed to determine whether the amount of formal education industrial teachers have completed does affect their attitude toward teaching and their teaching performance. It is desirable to make this study at this time since there presently exists in Oregon a considerable population of both degree and non-degree instructors. It is hoped that you will participate in this effort to add to current knowledge in the area.

Data and biographical information will be held in the strictest confidence. Information included in the study will be in statistical form only, and no names will be used. I assure you complete anonymity.

Your participation will be most appreciated. Your prompt reply will be helpful.

Approved:

*Redacted for Privacy*

Most sincerely,

*Redacted for Privacy*

Dr. J. Larry Heath  
Industrial Education  
Oregon State University

A. K. (Al) Pfahl  
Doctoral Candidate  
Oregon State University

DIRECTIONS

1. Please mark your responses to the items in the attitude scale.
2. Have students in one of your classes complete the Student Survey of Teaching form. Select a class in your major area where ten or more are enrolled. If more than twenty, use first twenty present on the roll.
3. Return completed attitude scale and all completed student surveys in the stamped, addressed envelope.



TEACHER ATTITUDE SCALE

Below are several statements related to your job as a teacher. Read each statement carefully and indicate the degree to which you agree or disagree with it according to the following scale:

- SD - Strongly Disagree - I strongly disagree with the statement.
- D - Disagree - I disagree with the statement, but not strongly so.
- N - Neutral - I am neutral toward the statement, or I just don't know enough about it.
- A - Agree - I agree with the statement, but not strongly so.
- SA - Strongly Agree - I strongly agree with the statement.

CIRCLE YOUR RESPONSE

As a Teacher, I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. must seek the help of qualified persons in business and industry in revising the content of the courses I teach . . . . .	SD	D	N	A	SA
2. think that each instructor in a college should try to relate the course he teaches to other courses taught in the institution . . . . .	SD	D	N	A	SA
3. should allow students to establish their own safety rules and regulations for the shop or laboratory . . . . .	SD	D	N	A	SA
4. think that colleges are better today because they are concerned about the development of the whole youth and not just teaching course subject matter	SD	D	N	A	SA
5. should arrange to have recent graduates of the program return to speak to the students now in my class . . . . .	SD	D	N	A	SA
6. have often wished that someone would supply me with all the instruction sheets and similar teaching materials I need . . . . .	SD	D	N	A	SA

-2-

As a Teacher I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. should attempt to help a student who has a personal problem if he comes to me voluntarily . . .	SD	D	N	A	SA
8. should work with the local employment service office to get my graduates lined up for jobs after graduation . . . . .	SD	D	N	A	SA
9. should have teaching aids available to meet all teaching situations . . . . .	SD	D	N	A	SA
10. have enough to do in teaching my own classes and should be relieved of other institutional responsibilities . . . . .	SD	D	N	A	SA
11. think the Department of Public Instruction should determine the content of all courses . . . . .	SD	D	N	A	SA
12. think students should have freedom in planning their curriculum . . . . .	SD	D	N	A	SA
13. should make the purpose of each lesson clear to the students . . . . .	SD	D	N	A	SA
14. think that trying to relate one course to another misleads students . . . . .	SD	D	N	A	SA
15. think labor unions have too great an influence in occupational program planning . . . . .	SD	D	N	A	SA
16. should place much emphasis on reducing waste of materials . . . . .	SD	D	N	A	SA
17. should leave the public relation efforts to the administration . . . . .	SD	D	N	A	SA
18. should use a course outline or teaching guide each class . . . . .	SD	D	N	A	SA
19. should leave shop layout responsibilities to the respective Dean or coordinator . . . . .	SD	D	N	A	SA
20. Believe that what I teach is not nearly as important as how I teach it . . . . .	SD	D	N	A	SA
21. should refer all student problems dealing with choice of curriculum to the counselor . . . . .	SD	D	N	A	SA

-3-

As a Teacher, I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
22. should maintain a workable plan for student personnel management . . . . .	SD	D	N	A	SA
23. should provide equipment which is representative of the type used in business and industry	SD	D	N	A	SA
24. should assume the responsibility for helping students in my classes select wise career plans	SD	D	N	A	SA
25. should take some responsibility for the management of activities outside my own classes .	SD	D	N	A	SA
26. should help students to develop positive attitudes toward shop housekeeping practices .	SD	D	N	A	SA
27. think that the custodial staff should be responsible for shop environmental conditions such as temperature, ventilation, and lighting	SD	D	N	A	SA
28. should invite leaders in the community to address my class . . . . .	SD	D	N	A	SA
29. feel that students should select all of their jobs or projects . . . . .	SD	D	N	A	SA
30. know that if someone prepared teaching materials for me it would interfere with my choice of course content . . . . .	SD	D	N	A	SA
31. should be expected to help in planning educational activities which are not a part of the course I teach . . . . .	SD	D	N	A	SA
32. should not be responsible for locating potential jobs for my students . . . . .	SD	D	N	A	SA
33. should keep my course up-to-date through summer employment . . . . .	SD	D	N	A	SA
34. should make determined efforts to become involved in community service activities . . . . .	SD	D	N	A	SA
35. feel that students should be allowed to manage most shop and laboratory activities . . . . .	SD	D	N	A	SA
36. believe that students must be encouraged to compete with each other . . . . .	SD	D	N	A	SA

-4-

As a Teacher, I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
37. believe that most prepared teaching materials do not fit in with my course outline . . . . .	SD	D	N	A	SA
38. must not become involved in discussions with individual students which deal with their future occupational plans . . . . .	SD	D	N	A	SA
39. should use work histories of former graduates of the program in curriculum planning . . . . .	SD	D	N	A	SA
40. feel that organizations like Advisory Committees should be tolerated, but not encouraged . . . . .	SD	D	N	A	SA
41. feel that pencil and paper tests should be used to evaluate student's manipulative competencies . . . . .	SD	D	N	A	SA
42. think that administrators, such as the Dean and curriculum coordinator, should plan the school curriculum . . . . .	SD	D	N	A	SA
43. think that the mass media should be avoided in publicizing college programs . . . . .	SD	D	N	A	SA
44. feel that all students should be required to complete the same jobs or projects . . . . .	SD	D	N	A	SA
45. should be considered to be a good instructor if I do a good job in the classroom . . . . .	SD	D	N	A	SA
46. should be sure that the objectives of the lesson are accomplished . . . . .	SD	D	N	A	SA
47. must have the help of experts in my subject field to keep my course up-to-date . . . . .	SD	D	N	A	SA
48. think that if each course taught in a college is well planned there is no need for curriculum planning . . . . .	SD	D	N	A	SA
49. must help students relate their own strengths and weaknesses to future success in college . . . . .	SD	D	N	A	SA
50. feel I have a duty to serve as an example to the community . . . . .	SD	D	N	A	SA
51. should consider tool and equipment loss to be an accepted part of running a school shop or laboratory . . . . .	SD	D	N	A	SA

-5-

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
As a Teacher, I . . . .					
52. should encourage students to talk with the coun- selor about career planning . . . . .	SD	D	N	A	SA
53. should personally select all new equipment . . .	SD	D	N	A	SA
54. should provide demonstrations only when students desire them . . . . .	SD	D	N	A	SA
55. believe that I should help some of my fellow teachers who are instructing courses related to mine in preparing course materials . . . . .	.SD	D	N	A	SA
56. must refer all students with personal problems to the college counselor . . . . .	.SD	D	N	A	SA
57. should not look to the Dean of my school for help in deciding what I will teach . . . . .	.SD	D	N	A	SA
58. must consider safety instruction to be an integral part of the total educational program . . . . .	SD	D	N	A	SA
59. feel that attending the various instructors' annual conferences is essentially a waste of time . . . .	.SD	D	N	A	SA
60. feel that other instructors can help in determining the content of the courses I teach . . . . .	.SD	D	N	A	SA
61. should have some responsibility in planning the total educational program of the college . . . .	.SD	D	N	A	SA
62. should keep up-to-date with the progress of former students for at least five years following gradu- ation . . . . .	.SD	D	N	A	SA
63. feel that I should take advantage of opportunities to address community groups . . . . .	SD	D	N	A	SA
64. should help the student to develop individual pride in accomplishment . . . . .	SD	D	N	A	SA
65. feel that the less parents know about what goes on in the college the better off the college is	SD	D	N	A	SA
66. believe that if the student hasn't learned, then I haven't taught . . . . .	SD	D	N	A	SA

-6-

As a Teacher, I . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
67. am in the best position to know what should be taught in my course . . . . .	SD	D	N	A	SA
68. think that a salaried assistant should be provided to maintain and issue shop or laboratory equipment . . . . .	SD	D	N	A	SA
69. should provide the students in my classes with information regarding future educational opportunities . . . . .	SD	D	N	A	SA
70. feel that my primary responsibilities are to the students themselves . . . . .	SD	D	N	A	SA
71. should inform persons in the community about the courses I teach . . . . .	SD	D	N	A	SA
72. think that the Dean of Students should deal with most disciplinary problems . . . . .	SD	D	N	A	SA

Please check the number that represents your best estimate of your completed classwork:

1. High school graduate  
 2. Twenty-five quarter hours or less  
 3. Twenty-six to ninety quarter hours  
 4. Ninety-one to 192 quarter hours  
 5. More than 192 quarter hours. [ ] Check if you have bachelor's degree

Please check the extent of your years of industrial experience.

1. Five or more  
 2. Three to five  
 3. One but less than three  
 4. Less than one year  
 5. None

Your Name \_\_\_\_\_

[ ] Check if you would like resume of completed study.

<p>A Study of Attitude and Teaching Performance of Degree and Non-degree Teachers in INDUSTRIAL EDUCATION</p>
---

April, 1970

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Data and biographical information will be held in the strictest confidence. Information included in the study will be in statistical form only, and no names will be used. I assure you complete anonymity.

Your participation will be most appreciated. Your prompt reply will be helpful.

Approved:

*Redacted for Privacy*

Most sincerely,

*Redacted for Privacy*

Dr. J. Larry Heath  
Industrial Education  
Oregon State University

A. K. (Al) Pfahl  
Doctoral Candidate  
Oregon State University

DIRECTIONS

1. Please mark your responses to the items in the attitude scale.
2. Have students in one of your classes complete the Student Survey of Teaching form. Select a class in your major area where ten or more are enrolled. If more than twenty, use first twenty present on the roll.
3. Return completed attitude scale and all completed student surveys in the stamped, addressed envelope.

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CIRCLE YOUR RESPONSE

As a Teacher, I . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
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2. think that each teacher in a school should try to relate the subject he teaches to other subjects taught in the school . . . . .	SD	D	N	A	SA
3. should allow students to establish their own safety rules and regulations for the shop or laboratory . . . . .	SD	D	N	A	SA
4. think that schools are better today because they are concerned about the development of the whole youth and not just teaching subject matter . . . . .	SD	D	N	A	SA
5. should arrange to have recent graduates of the program return to speak to the students now in my class . . . . .	SD	D	N	A	SA
6. have often wished that someone would supply me with all the instruction sheets and similar teaching materials I need . . . . .	SD	D	N	A	SA



-2-

As a Teacher I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. should attempt to help a student who has a personal problem if he comes to me voluntarily . . .	SD	D	N	A	SA
8. should work with the local employment service office to get my twelfth graders lined up for jobs after graduation . . . . .	SD	D	N	A	SA
9. should have teaching aids available to meet all teaching situations . . . . .	SD	D	N	A	SA
10. have enough to do in teaching my own classes and should be relieved of other school responsibilities . . . . .	SD	D	N	A	SA
11. think the Department of Public Instruction should determine the content of all courses . . . . .	SD	D	N	A	SA
12. think students should have freedom in planning their curriculum . . . . .	SD	D	N	A	SA
13. should make the purpose of each lesson clear to the students . . . . .	SD	D	N	A	SA
14. think that trying to relate one school subject to another misleads students . . . . .	SD	D	N	A	SA
15. think labor unions have too great an influence in vocational program planning . . . . .	SD	D	N	A	SA
16. should place much emphasis on reducing waste of materials . . . . .	SD	D	N	A	SA
17. should leave the public relation efforts to the school administration . . . . .	SD	D	N	A	SA
18. should use a lesson plan or teaching guide each school day . . . . .	SD	D	N	A	SA
19. should leave shop layout responsibilities to the school principal . . . . .	SD	D	N	A	SA
20. believe that what I teach is not nearly as important as how I teach it . . . . .	SD	D	N	A	SA
21. should refer all student problems dealing with choice of curriculum to the guidance counselor .	SD	D	N	A	SA

-3-

As a Teacher, I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
22. should maintain a workable plan for student personnel management . . . . .	.SD	D	N	A	SA
23. should provide equipment which is representative of the type used in business and industry .SD	.SD	D	N	A	SA
24. should assume the responsibility for helping students in my classes select wise career plans.SD	.SD	D	N	A	SA
25. should take some responsibility for the management of school activities outside my own classroom . . . . .	.SD	D	N	A	SA
26. should help students to develop positive attitudes toward shop and classroom housekeeping practices . . . . .	.SD	D	N	A	SA
27. think that the custodial staff should be responsible for shop environmental conditions such as temperature, ventilation, and lighting . . . . .SD	.SD	D	N	A	SA
28. should invite leaders in the community to address my class . . . . .	.SD	D	N	A	SA
29. feel that students should select all of their jobs or projects . . . . .	.SD	D	N	A	SA
30. know that if someone prepared teaching materials for me it would interfere with my choice of course content . . . . .	.SD	D	N	A	SA
31. should be expected to help in planning educational activities which are not part of the course I teach . . . . .	.SD	D	N	A	SA
32. should not be responsible for locating potential jobs for my students . . . . .	.SD	D	N	A	SA
33. should keep my course up-to-date through summer employment . . . . .	.SD	D	N	A	SA
34. should make determined efforts to become involved in community service activities . . . . .SD	.SD	D	N	A	SA
35. feel that students should be allowed to manage most school shop and laboratory activities . . .SD	.SD	D	N	A	SA

-4-

As a Teacher, I . . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
36. believe that students must be encouraged to compete with each other . . . . .	SD	D	N	A	SA
37. believe that most prepared teaching materials do not fit in with my course of study . . . . .	SD	D	N	A	SA
38. must not become involved in discussions with individual students which deal with their future occupational plans . . . . .	SD	D	N	A	SA
39. should use work histories of former graduates of the program in curriculum planning . . . . .	SD	D	N	A	SA
40. feel that organizations like the PTA should be tolerated, but not encouraged . . . . .	SD	D	N	A	SA
41. feel that pencil and paper tests should be used to evaluate student's manipulative competencies	SD	D	N	A	SA
42. think that administrators, such as the principal and curriculum coordinator, should plan the school curriculum . . . . .	SD	D	N	A	SA
43. think that the mass media should be avoided in publicizing school programs . . . . .	SD	D	N	A	SA
44. feel that all students should be required to complete the same jobs or projects . . . . .	SD	D	N	A	SA
45. should be considered to be a good teacher if I do a good job in my classroom . . . . .	SD	D	N	A	SA
46. should be sure that the objectives of the lesson are accomplished . . . . .	SD	D	N	A	SA
47. must have the help of experts in my subject field to keep my course up-to-date . . . . .	SD	D	N	A	SA
48. think that if each course taught in a school is well planned there is no need for curriculum planning . . . . .	SD	D	N	A	SA
49. must help students relate their own strengths and weaknesses to future success in school . . .	SD	D	N	A	SA
50. feel I have a duty to serve as an example to the community . . . . .	SD	D	N	A	SA

-5-

As a Teacher, I . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
51. should consider tool and equipment loss to be an accepted part of running a school shop or laboratory . . . . .	.SD	D	N	A	SA
52. should encourage students to talk with the guidance counselor about career planning . . .	.SD	D	N	A	SA
53. should personally select all new equipment . . .	.SD	D	N	A	SA
54. should provide demonstrations only when students desire them . . . . .	.SD	D	N	A	SA
55. believe that I should help some of my fellow teachers who are teaching subjects related to mine in preparing course materials . . . . .	.SD	D	N	A	SA
56. must refer all students with personal problems to the school guidance personnel . . . . .	.SD	D	N	A	SA
57. should not look to the principal of my school for help in deciding what I will teach . . . . .	.SD	D	N	A	SA
58. must consider safety instruction to be an integral part of the total educational program . . .	.SD	D	N	A	SA
59. feel that attending the various teachers' annual conferences is essentially a waste of time . . .	.SD	D	N	A	SA
60. feel that other teachers can help in determining the content of the courses I teach . . . . .	.SD	D	N	A	SA
61. should have some responsibility in planning the total educational program of the school . . . .	.SD	D	N	A	SA
62. should keep up-to-date with the progress of former students for at least 5 years following graduation . . . . .	.SD	D	N	A	SA
63. feel that I should take advantage of opportunities to address community groups . . . . .	.SD	D	N	A	SA
64. should help the student to develop individual pride in accomplishment . . . . .	.SD	D	N	A	SA
65. feel that the less parents know about what goes on in the schools the better off the school are . . . . .	.SD	D	N	A	SA

As a Teacher, I . . . .	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
66. believe that if the student hasn't learned, then I haven't taught . . . . .	.SD	D	N	A	SA
67. am in the best position to know what should be taught in my course . . . . .	.SD	D	N	A	SA
68. think that a salaried assistant should be pro- vided to maintain and issue shop or laboratory equipment . . . . .	.SD	D	N	A	SA
69. should provide the students in my classes with information regarding future educational opportunities . . . . .	.SD	D	N	A	SA
70. feel that my primary responsibilities are to the students themselves . . . . .	SD	D	N	A	SA
71. should inform persons in the community about the subject I teach . . . . .	.SD	D	N	A	SA
72. think that the principal should deal with most disciplinary problems . . . . .	.SD	D	N	A	SA

Please check the number that represents your best estimate of your completed classwork:

- 1. High school graduate
- 2. Twenty-five quarter hours or less
- 3. Twenty-six to ninety quarter hours
- 4. Ninety-one to 192 quarter hours
- 5. More than 192 quarter hours. [ ] Check if you have bachelor's degree

Please check the extent of your years of industrial experience.

- 1. Five or more
- 2. Three to five
- 3. One but less than three
- 4. Less than one year
- 5. None

Your Name \_\_\_\_\_

[ ] Check if you would like resume of completed study.

## SURVEY OF STUDENT OPINION OF TEACHING

Instructor's Name \_\_\_\_\_

Occupational Course \_\_\_\_\_

This survey is being made as a part of a research project for a doctoral study at Oregon State University. The information received will not identify any student individually. The information received will not identify your instructor individually.

Listed below are several aspects of instructor behavior. Rate your instructor on each of these items by drawing a circle around the number that best indicates his position in comparison with other teachers you have had. Rate each item as thoughtfully as carefully as possible. Do Not omit items. Of course, it will be the very unusual when the number you circle is the same for all items.

- |  | <i>Outstanding</i> | <i>Superior</i> | <i>Competent</i> | <i>Only Fair</i> | <i>Of Less Value</i> |
|--|--------------------|-----------------|------------------|------------------|----------------------|
| 1. Interprets ideas and theories clearly . . . . .                 | 2                  | 3               | 4                | 5                |                      |
| 2. Gets me interested in his subject . . . . .                     | 2                  | 3               | 4                | 5                |                      |
| 3. Has increased my skills in thinking . . . . .                   | 2                  | 3               | 4                | 5                |                      |
| 4. Has helped broaden my interests . . . . .                       | 2                  | 3               | 4                | 5                |                      |
| 5. Stresses important material . . . . .                           | 2                  | 3               | 4                | 5                |                      |
| 6. Makes good use of examples and illustrations . . . . .          | 2                  | 3               | 4                | 5                |                      |
| 7. Has motivated me to do my best work . . . . .                   | 2                  | 3               | 4                | 5                |                      |
| 8. Inspires class confidence in his knowledge of subject . . . . . | 2                  | 3               | 4                | 5                |                      |
| 9. Has given me new viewpoints or appreciations . . . . .          | 2                  | 3               | 4                | 5                |                      |
| 10. Is clear and understandable in his explanations . . . . .      | 2                  | 3               | 4                | 5                |                      |
| 11. Has helped me select an occupation . . . . .                   | 2                  | 3               | 4                | 5                |                      |

SCORING KEY  
VOCATIONAL INDUSTRIAL TEACHER ATTITUDE SCALE  
(72 ITEM SCALE)

1. Positive	25. Positive	49. Positive
2. Positive	26. Positive	50. Positive
3. Negative	27. Negative	51. Negative
4. Positive	28. Positive	52. Positive
5. Positive	29. Negative	53. Negative
6. Negative	30. Negative	54. Negative
7. Positive	31. Positive	55. Positive
8. Positive	32. Negative	56. Negative
9. Negative	33. Negative	57. Negative
10. Negative	34. Positive	58. Positive
11. Negative	35. Negative	59. Negative
12. Positive	36. Negative	60. Positive
13. Positive	37. Positive	61. Positive
14. Negative	38. Negative	62. Positive
15. Negative	39. Positive	63. Positive
16. Positive	40. Negative	64. Positive
17. Negative	41. Negative	65. Negative
18. Positive	42. Negative	66. Negative
19. Negative	43. Negative	67. Positive
20. Negative	44. Negative	68. Positive
21. Negative	45. Negative	69. Positive
22. Positive	46. Positive	70. Positive
23. Positive	47. Positive	71. Positive
24. Negative	48. Negative	72. Negative

## REQUEST LETTER

April 15, 1970

Mr. Robert Crain, Principal  
Occupational Skill Center  
14211 S. E. Johnson Road  
Milwaukie, Oregon 97222

Dear Mr. Crain:

A study is being conducted to investigate attitude and teaching performance of degree and non-degree teachers in industrial education. The study has been reviewed and approved by the Oregon Community College Association.

Data for the attitude study will be gathered by inviting each instructor in the sample to participate by completing an industrial teacher attitude scale. Data for performance will be gathered by a survey of ten to twenty students per instructor for their opinion of his teaching. Data will be analyzed in groupings assuring anonymity for each participant and institution. A copy of each instrument is enclosed.

I am requesting permission to invite eight Occupational Skill Center industrial education teachers to participate in the study. My plan is to mail the instruments to each person. Please complete the enclosed form and return it in the stamped, addressed envelope.

Thank you for the consideration of this request.

Most Sincerely,

Dr. J. Larry Heath  
Dept. of Industrial Education  
Oregon State University

A. K. (Al) Pfahl  
Doctoral Candidate  
Oregon State University



PERMISSION FORM--COMMUNITY COLLEGE

A Study of Attitude and Teaching Performance  
of Degree and Non-degree Teachers  
in Industrial Education

May I invite industrial instructors in your college to  
participate in this study?

Yes

\_\_\_\_\_

Signature

## PERMISSION FORM--SECONDARY

A Study of Attitude and Teaching Performance  
of Degree and Non-degree Teachers  
in Industrial Education

May I invite industrial instructors in your school  
to participate in this study?

Yes

---

Signature

## FOLLOW-UP LETTER

Re: A Study of Attitude and Teaching Performance of Degree  
and Non-degree Teachers in Industrial Education

Recently materials were mailed you for the above study. To date I have not received your reply.

Since there is a limited number of instructors involved, your response is important for reaching a valid conclusion. The student opinion survey will take ten minutes or less. It takes twenty minutes to respond to the attitude scale.

To complete the study this term, data needs to be returned by May 20. Your prompt reply will be most appreciated.

Sincerely yours,

A. K. Pfahl  
OSU Doctoral Candidate

APPENDIX B

DATA

Group Ia: Industrial Instructors with 25 or Less Credit Hours  
Professional Preparation.

I	A	10	11
1	228	134	150
2	314	214	247
3	280	164	190
4	274	193	221
5	233	262	298
6	248	186	213
7	248	161	186
8	277	237	265
9	261	325	370
10	267	188	218
11	268	204	238
12	271	203	229
13	266	207	243
14	243	203	233
15	282	226	254
16	258	211	233
17	248	189	221
18	277	229	268
19	283	145	173
20	260	248	287
21	272	231	256
22	248	220	248
23	249	245	286
24	261	243	267
25	277	213	243

Column

- I: Instructor number
- A: Instructor's attitude score
- 10: Instructor's performance score, first 10 items total
- 11: Instructor's total performance score, 11 items

Group Ib: Industrial Instructors with More than 25 Credit Hours  
Professional Preparation, but Less than a Baccalaureate  
Degree

I	A	10	11
26	281	169	196
27	267	173	198
28	267	169	186
29	242	290	329
30	253	281	322
31	257	191	223
32	258	265	299
33	245	258	294
34	260	219	248
35	264	217	248
36	276	221	258
37	276	191	220
38	251	197	228
39	300	211	239
40	251	240	277
41	263	194	230
42	289	225	255
43	238	188	215
44	264	196	228
45	254	176	204
46	243	310	349
47	266	324	363
48	297	251	279
49	259	199	226
50	270	213	247
51	252	327	363
52	251	211	240
53	283	189	219
54	289	155	175
55	266	194	225
56	284	148	168
57	295	225	256
58	278	191	217
59	277	193	223
60	295	212	247
61	264	287	318
62	278	201	235
63	269	137	176

Continued on next page

Group Ib continued.

I	A	10	11
64	270	159	177
65	257	268	311
66	247	127	141
67	269	201	232
68	258	251	281
69	261	264	302
70	263	221	250

Column

- I: Instructor number
- A: Instructor's attitude score
- 10: Instructor's performance score, first 10 items total
- 11: Instructor's total performance score, 11 items

Group II: Industrial Instructors Professionally Prepared with a  
Baccalaureate Degree or More.

I	A	10	11
71	271	236	267
72	247	218	252
73	297	213	247
74	266	222	241
75	271	232	271
76	276	215	247
77	267	195	223
78	277	261	299
79	221	186	214
80	251	199	230
81	279	270	311
82	267	268	299
83	254	288	331
84	252	259	298
85	278	237	268
86	259	295	334
87	256	250	285
88	258	173	214
89	277	252	286
90	271	155	172
91	286	189	214
92	246	235	267
93	277	255	288
94	244	183	219
95	257	247	275
96	283	226	258
97	289	206	243
98	269	232	265
99	255	237	272
100	270	234	262
101	250	209	240
102	271	181	211
103	258	189	216
104	273	245	282
105	264	212	245
106	252	243	271
107	260	314	356
108	272	221	260
109	252	237	266
110	247	192	218

Continued on next page



## Group II continued.

I	A	10	11
111	283	251	278
112	305	214	248
113	283	205	231
114	237	242	275
115	246	169	198
116	249	289	335
117	258	232	261
118	265	230	265
119	256	166	190
120	261	197	230
121	271	206	236
122	243	294	332
123	275	243	240
124	271	222	251
125	262	198	228
126	255	269	309
127	290	236	268
128	282	189	241
129	273	321	362
130	269	189	218
131	240	147	165
132	269	282	315
133	262	261	302
134	270	238	266
135	295	176	203
136	255	230	259
137	270	276	312
138	280	207	236
139	265	224	262
140	248	221	256

## Column

- I: Instructor number
- A: Instructor's attitude score
- 10: Instructor's performance score, first 10 items
- 11: Instructor's total performance score, 11 items

APPENDIX C

LIST OF SCHOOLS FROM WHICH ONE OR MORE  
INSTRUCTORS PARTICIPATED IN THE STUDY

## COMMUNITY COLLEGES

1. Blue Mountain	Pendleton, Oregon
2. Central Oregon	Bend, Oregon
3. Chemeketa	Salem, Oregon
4. Clackamas	Oregon City, Oregon
5. Clatsop	Astoria, Oregon
6. Lane	Eugene, Oregon
7. Linn-Benton	Albany, Oregon
8. Mt. Hood	Gresham, Oregon
9. Portland	Portland, Oregon
10. Treasure Valley	Ontario, Oregon
11. Umpqua	Roseburg, Oregon

## SECONDARY SCHOOLS

Area Vocational Center, Clatsop I. E. D.	Astoria, Oregon
Beaverton Public Schools	Beaverton, Oregon
Beaverton High School	
Sunset High School	
Aloha High School	
Cascade Union High School	Turner, Oregon
Centennial High School	Gresham, Oregon
Hermiston Senior High School	Hermiston, Oregon
La Grande High School	La Grande, Oregon
Lake Oswego Senior High School	Lake Oswego, Oregon
Lebanon Union High School	Lebanon, Oregon
Crater High School	Central Point, Oregon
Corvallis Senior High School	Corvallis, Oregon
Cottage Grove High School	Cottage Grove, Oregon
Eagle Point High School	Eagle Point, Oregon
Estacada Union High School	Estacada, Oregon
Eugene School District #4J	Eugene, Oregon
Forest Grove Union High School	Forest Grove, Oregon
Gold Beach Union High School	Gold Beach, Oregon
Marshfield Senior High School	Marshfield, Oregon
Newport Senior High School	Newport, Oregon
Union High District #5, Occupa- tional Skills Center	Milwaukie, Oregon
Portland Public Schools	Portland, Oregon
Benson Polytechnic	
Marshall High School	
Roosevelt High School	

## Secondary Schools continued.

Redmond High School  
Reynolds High School  
South Umpqua High School  
Silverton High School  
West Linn High School  
Willamette High School

Redmond, Oregon  
Troutdale, Oregon  
Myrtle Creek, Oregon  
Silverton, Oregon  
West Linn, Oregon  
Eugene, Oregon