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A COMPARATIVE STUDY BETWEEN COOPERATIVE DISTRIBUTIVE EDUCATION TRAINED EMPLOYED GRADUATES AND NONDISTRIBUTIVE EDUCATION TRAINED CO-WORKERS USING SELECTED FACTORS RELATED TO JOB ATTITUDES, JOB PERFORMANCE, AND PERCEPTIONS OF PRIOR EDUCATION

The Ohio State University

Ph.D. 1980

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TRAINED CO-WORKERS USING SELECTED FACTORS
RELATED TO JOB ATTITUDES, JOB PERFORMANCE, AND
PERCEPTIONS OF PRIOR EDUCATION

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Ervin Albert Emery Jr., B.S.Ed., M. Ed.
* * * * *

The Ohio State University
1980

Reading Committee:
Dr. D.L. Boggs
Dr. Edwin G. Novak
Dr. Otto Santos

Approved By:

Adviser
Faculty of Vocational
Technical Education
The academic effort of this student could not have been possible without the direction and guidance of a truly wonderful individual. It is with a great deal of appreciation that this dissertation is posthumously dedicated to Dr. Neal E. Vivian.
ACKNOWLEDGEMENTS

In order to undertake the commitment of completing the requirements for the Ph.D. degree, a tremendous amount of support was necessary from my family. My wife, Teddy, was always with me providing encouragement.

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VITA

October 13, 1930. Born - Kenosha, Wisconsin

1971 B.S.Ed., Florida Atlantic University, Boca Raton, Florida

1971-1972 Distributive Education Teacher-Coordinator, North Fort Myers High Schools, North Fort Myers, Florida

1972-1976 Instructor, Hotel/Motel and Restaurant Management and Mid-Management, Edison Community College, Fort Myers, Florida

1971-1976 Instructor Adult Distributive Education, Lee County Vocational School, Fort Myers, Florida

1976 M.Ed., Florida Atlantic University, Boca Raton, Florida

1976-1978 Research Associate IDECC, Inc. The Ohio State University, Columbus, Ohio

FIELDS OF STUDY

Major Field: Vocational-Technical Education

Studies in Distributive Education
Professor Neal E. Vivian

Studies in Adult Education
Professor D.L. Boggs
Studies in Research and Educational Development
Professor Edwin G. Novak
Professor Desmond L. Cook
Professor John J. Kennedy
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>VITA</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
</tbody>
</table>

## Chapter

### I. INTRODUCTION

- Background of the Study .......................... 1
- Statement of the Problem .......................... 5
- Purpose of the Study ................................ 5
- Hypotheses ......................................... 6
- Delimitations ...................................... 8
- Limitations ........................................ 8
- Definition of Terms .................................. 9

### II. REVIEW OF THE LITERATURE

- Studies of the Outcomes of Cooperative Distributive Education .................................................. 13
- Survey of the Literature on the Evaluation of Cooperative Vocational Education Programs ................. 18
- Research in General Education Affecting Job Satisfaction and Job Performance ............................. 20
- Literature on Job Attitude Factors and Job Performance from the Field of Psychology .................. 21

### III. METHODS AND PROCEDURES

- Approach ............................................ 32
- Instrumentation .................................... 33
- Pilot Study ........................................ 36
- Research Design .................................... 39
- Procedure .......................................... 41
- Treatment of the Data ................................ 45

### IV. ANALYSIS

- Response Rates—Survey and Items .................. 51
- Reliability of Instruments ........................ 52
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Data</td>
<td>52</td>
</tr>
<tr>
<td>Results of Hypothesis Testing</td>
<td>55</td>
</tr>
<tr>
<td>Summary</td>
<td>72</td>
</tr>
<tr>
<td>V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</td>
<td>74</td>
</tr>
<tr>
<td>Summary</td>
<td>74</td>
</tr>
<tr>
<td>Conclusions</td>
<td>77</td>
</tr>
<tr>
<td>Recommendations for Further Research</td>
<td>80</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>82</td>
</tr>
<tr>
<td>APPENDIXES</td>
<td>89</td>
</tr>
<tr>
<td>A. Sample Survey</td>
<td>89</td>
</tr>
<tr>
<td>B. Description of Instruments</td>
<td>111</td>
</tr>
<tr>
<td>C. Scoring Procedure for All Instruments</td>
<td>121</td>
</tr>
<tr>
<td>D. Permission to Use Instruments</td>
<td>125</td>
</tr>
<tr>
<td>E. Pilot Study Reliability Results</td>
<td>131</td>
</tr>
<tr>
<td>F. Variable List for Pilot Study</td>
<td>135</td>
</tr>
<tr>
<td>G. Determination of Columbus, Ohio, Sample Size From Pilot Study Data</td>
<td>138</td>
</tr>
<tr>
<td>H. Permission to Conduct the Study in Columbus, Ohio School District</td>
<td>144</td>
</tr>
<tr>
<td>I. Human Subjects</td>
<td>146</td>
</tr>
<tr>
<td>J. Missing Items by Group and Instrument</td>
<td>149</td>
</tr>
<tr>
<td>K. Columbus, Ohio Reliability Results</td>
<td>152</td>
</tr>
<tr>
<td>L. Post Hoc Multiple Comparisons For Hypothesis 1.3.2.</td>
<td>156</td>
</tr>
<tr>
<td>M. Descriptive Analysis of Personal and Technical Skills as Reported By Co-Worker, DE Employees and Employer/ Supervisor Ratings</td>
<td>163</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>1.</td>
<td>Employee Course of Study in High School</td>
</tr>
<tr>
<td>2.</td>
<td>Male and Female Employee Respondents</td>
</tr>
<tr>
<td>3.</td>
<td>Test of Hypothesis 1.1.1, Paired ( t )-test Between Intrinsic and Extrinsic Job Satisfaction of DE Employees</td>
</tr>
<tr>
<td>4.</td>
<td>Hypotheses 1.1.2, 1.1.3, and 1.1.4, Paired ( t )-tests of Job Satisfaction Between DE and Co-Worker Employee Means</td>
</tr>
<tr>
<td>5.</td>
<td>Hypothesis 1.2, Paired ( t )-test of Job Involvement Between DE and Co-Worker Employee Means</td>
</tr>
<tr>
<td>6.</td>
<td>Hypothesis 1.3.1, Paired ( t )-test of Work Ethic Belief About Work Between DE and Co-Worker Employee Means</td>
</tr>
<tr>
<td>7.</td>
<td>Hypothesis 1.3.2, Summary of Regression Analysis of Variance for Belief About Work: Humanistic</td>
</tr>
<tr>
<td>8.</td>
<td>Hypothesis 1.3.2, Summary of Regression Analysis of Variance for Belief About Work: Marxist</td>
</tr>
<tr>
<td>9.</td>
<td>Hypothesis 1.3.2, Summary of Regression Analysis of Variance for Belief About Work: Organizational</td>
</tr>
<tr>
<td>10.</td>
<td>Hypothesis 1.3.2, Summary of Regression Analysis of Variance for Belief About Work: Leisure</td>
</tr>
<tr>
<td>11.</td>
<td>Hypothesis 1.3.2, Summary of Regression Analysis of Variance for Belief About Work: Work Ethic</td>
</tr>
<tr>
<td>12.</td>
<td>Hypothesis 2, Paired ( t )-tests Between DE Employees and Co-Workers Separate and Overall Job Performance Criteria Ratings by Employers</td>
</tr>
<tr>
<td>13.</td>
<td>Hypothesis 3.1, Paired ( t )-tests of Perceptions of Prior Education Between DE Employees and Co-Workers</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>14. Hypothesis 3.1, Descriptive Data: Perceptions of Prior Education of Personal and Technical Skills</td>
<td>67</td>
</tr>
<tr>
<td>15. Hypothesis 3.2, Paired t-tests of Perceptions of Prior Education Employers' Ratings on DE Employee and Co-Worker</td>
<td>68</td>
</tr>
<tr>
<td>16. Hypothesis 3.2, Descriptive Data: Perceptions of Prior Education Employers' Ratings on DE Employee and Co-Workers</td>
<td>69</td>
</tr>
<tr>
<td>17. Hypothesis 3.3, Paired t-tests of Perceptions of Prior Education Between Employers' and DE Employees</td>
<td>70</td>
</tr>
<tr>
<td>18. Hypothesis 3.3, Descriptive Data: Perceptions of Prior Education Employers' Ratings and DE Employee Ratings</td>
<td>71</td>
</tr>
<tr>
<td>19. Hypothesis 4, Paired t-tests of Overall Need to Achieve Motivation Between DE Employees' and Co-Workers'</td>
<td>72</td>
</tr>
<tr>
<td>20. Cronbach-Alpha and Aplit Half Reliability Coefficients for Belief About Work Subscales</td>
<td>116</td>
</tr>
<tr>
<td>21. Missing Items By Group and Instrument</td>
<td>150</td>
</tr>
<tr>
<td>22. Mean-Comparison Matrix For All Groups on Marxist Beliefs About Work</td>
<td>160</td>
</tr>
<tr>
<td>23. Mean-Comparison Matrix For All Groups on Organizational Beliefs About Work</td>
<td>162</td>
</tr>
<tr>
<td>24. Descriptive Analysis of Personal Skills as Reported By Co-Workers', DE Employees and Employer/Supervisor Ratings on the Two Employee Groups</td>
<td>163</td>
</tr>
<tr>
<td>25. Descriptive Analysis of Technical Skills as Reported By Co-Workers', DE Employees and Employer/Supervisor Ratings on the Two Employee Groups</td>
<td>166</td>
</tr>
</tbody>
</table>
### LIST OF FIGURE

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Design of the Study Showing All Three Groups.</td>
<td>40</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION
Background of the Study

High school cooperative distributive education instruction trains students so that they may become full-time employees upon graduation (Crawford, 1967, 1975). In other words, distributive programs are producers of skilled graduate employees and must be able to guarantee their end product—the graduate. Information on students' job skills, therefore, is necessary for cooperative distributive educators to be able to improve instruction (Meyer and Logan, 1966). Finding effective ways to measure employed graduates' job proficiency, job attitudes, and perceptions of their prior education is a major purpose and concern of distributive educators (Moss, 1968).

Distributive educators can learn much about the quality of their program by considering whether employed graduates exhibit better attitudes toward the job and better performance skills and feel more positive towards their training than co-workers who have not received this training. This study addressed these considerations.

Researchers in distributive education have identified job satisfaction, perceptions of prior education, and job performance as variables in determining the results of cooperative distributive education instruction (Crawford, 1967, 1975; Weatherford, 1974). Past studies based on these variables have involved independent comparisons
between employed distributive program graduates and nongraduates of the program. Researchers anticipated that such comparisons would show statistically significant higher mean scores for program graduates. Results of the comparisons have shown no significant differences between the two groups (Zancanella, 1965; Robertson, 1965; Vogeley, 1958; Wilkinson, 1974).

Current research in the field of psychology may assist in explaining these results when the variables or factors contributing to job satisfaction and job performance are considered. For example, Billings (1979), Locke (1968, 1976), Campbell and Pritchard (1976), and Lawler (1973) discuss the need to include subfactors which provide an overall value for job satisfaction. In this context job satisfaction would consist of intrinsic and extrinsic satisfaction as well as general job satisfaction.

Psychological research on job satisfaction suggests that this variable should not be regarded in isolation in the evaluation of educational outcomes (Billings, 1979; Quinn, 1975). Billings (1979) points out that job involvement and beliefs about work are also important in evaluating vocational education outcomes. Thus, studies investigating the attitudes of employed graduates should not be limited to job satisfaction alone when instruction encompasses several variables.

Specifically, in high school cooperative distributive education, job involvement is taught on-the-job, while beliefs about work are taught in a classroom related instructional unit. For example, on-the-job training fosters job involvement by rotating students through various job duties and using the job supervisor's evaluation. Beliefs about work are included in curriculum sections on the private enterprise system, human relations, and business management. Since both job
involvement and beliefs about work are included in the curriculum, they should be included in studies of job attitudes.

In the past, researchers in distributive education have failed to evaluate more than one job attitude (job satisfaction). Even when job satisfaction was studied, contributing factors were often overlooked.

The performance dimension, in itself, includes a cluster of factors (Billings, 1979). Unlike factors relating to job attitude, job performance factors are well known. Job performance factors usually include quantity and quality of work, job knowledge, initiative, interpersonal relationships, dependability, and potential. Most research in distributive education takes these factors into consideration (Zancanella, 1965; Robertson, 1965; Vogeley, 1958; Wilkinson, 1974).

Billings (1979) comments that many dimensions of job performance are actually measures of motivation but he does not elaborate on these dimensions. Campbell and Pritchard (1976), however in working with need to achieve motivation theory, have identified need to achieve as a primary motivating force affecting job performance. Research studies which isolate job performance from other affective motivating influences may be less accurate in explaining rated performance (Billings, 1979; Campbell and Pritchard, 1976). This points to the need for including achievement motivation in a comparative study such as the present one.

Cooperative distributive education students develop achievement motivation through individualized on-the-job instruction and co-curricular activities. In addition, related classroom instruction with an emphasis on decision making allows students to demonstrate their performance skills and build confidence. Thus, need to achieve motivation is an important variable to be considered in addition to job performance
measures.

Studies of students' perceptions of their prior education have produced inconsistent results. Using independent samples, Vogeley (1958), Robertson (1965), and Zancanella (1965) found that cooperative distributive trainees had similar ratings to those who were not trainees. Ely (1964), Easton (1963), Haines (1965), and Mason (1961), on the other hand, found that trainees and employers felt cooperative distributive education classroom instruction was helpful and contributed to job advancement.

Inconsistencies arise in follow-up studies because the length of time a student has been out of high school affects the answers given. McKinney (1977) suggests that only those out of school for at least a year or more should be included in a follow-up study. Unfortunately, the longer former high school students have been out of school, the more difficult it is to separate the value of education from the influence of noneducational activities. Also, the longer students are away from school, the less valid their judgments about the current educational program are likely to be.

In the past, researchers in distributive education have selected independent samples for a comparative evaluation of program graduates and have surveyed graduate employees who have been out of high school for as long as six years prior to the study (Ely, 1954; Vogely, 1958; Zancanella, 1965). This points to the need for establishing limits on length of time since graduation in order to obtain a more valid judgment about graduates' prior distributive education training in light of the current job situation.
Summary

Researchers using independent sampling methods and surveying graduates out of high school for several years have not found that employed cooperative distributive education graduates are superior to employees without a cooperative distributive education background. The lack of significant results in these studies may be due to the independent sampling design as well as the use of graduates who have been out of high school for some time. Current research in psychology has demonstrated the need to compare employees on the major concepts of job satisfaction (intrinsic and extrinsic satisfaction), job performance and additional job attitudes (job involvement, beliefs about work). Each of these factors needs to be explored in distributive education research. As yet, distributive education research has not incorporated these additional variables and design techniques.

In light of such deficiencies in past research, the present study was designed as a matched job comparison between cooperative distributive education graduates who are full-time workers one year after high school graduation and full-time co-workers without distributive training.

Statement of the Problem

The problem under investigation involved whether employed distributive education graduates and their co-workers differed in job attitudes, job performance skills, and perceptions of prior education.

Purpose of the Study

The purpose of this study was to appraise the effect of high school cooperative distributive education programs on employed graduates, using selected factors related to job attitudes, job performance, and
perceptions of prior education.

Hypotheses

It is posited that graduates of high school cooperative distributive education programs are better trained in terms of the selected criteria (job attitudes, job performance skills and perceptions of prior education) than co-workers without the training. The following research hypotheses will be considered:

1. **Job Attitudes**

1.1 **Job Satisfaction: Intrinsic and Extrinsic Satisfaction and General Satisfaction**

1.1.1 Employed cooperative distributive education graduates will show significantly higher intrinsic than extrinsic satisfaction.

1.1.2 There will be no significant difference on extrinsic satisfaction measurements between employed cooperative distributive education graduates and paired co-workers.

1.1.3 Employed cooperative distributive education graduates will have a significantly higher intrinsic satisfaction measurement than paired co-workers.

1.1.4 There will be no significant difference on overall job satisfaction scores between employed cooperative distributive education graduates and paired co-workers.

1.2 **Job Involvement**

Employed cooperative distributive education graduates will show higher job involvement than paired co-workers.
1.3 Beliefs About Work

1.3.1 Employed cooperative distributive education graduates will express a stronger work ethic than paired co-workers.

1.3.2 There will be no significant difference between employed cooperative distributive education graduates, co-workers and employers on the belief about work sub-scales.

2. Job Performance

Employed cooperative distributive education graduates will have higher performance ratings than paired co-workers.

3. Perceptions of Prior Education

3.1 Employed cooperative distributive education graduates will rate their prior personal and technical skill training, as it relates to the current job situation, higher than will paired co-workers.

3.2 Employers will perceive cooperative distributive education graduates more favorably on personal and technical job skill training than paired co-workers.

3.3 Employed cooperative distributive education graduates will perceive their prior training more favorably, as it relates to the current job situation, than employers/supervisors on personal and technical job skills.
4. **Need-to-Achieve Motivation**

Employed cooperative distributive education graduates will have higher levels of achievement motivation than paired co-workers.

**Delimitations of the Study**

The delimitations of the study were as follows:

1. Cooperative distributive education graduates must have participated in a high school program with the following characteristics:
   a. The program must qualify as a Columbus, Ohio, Type 20 program.
   b. The program must have been taught by a teacher-coordinator certified under the State of Ohio distributive education certification requirements.
   c. The program must have received Federal and State reimbursement.

2. The study was limited to cooperative distributive education employees who have had no more than a high school education or one year of post-secondary education.

3. The study was limited to full-time employed Type 20 program cooperative distributive education graduates and their matched co-workers on the same job in the same business with the same length of job service and with the same employer/supervisor.

4. The study was limited to full-time employed Type 20 program cooperative distributive education graduates from the Columbus, Ohio, public school system, June, 1978, graduating classes.

**Limitations of the Study**

1. A multi-part questionnaire format was used to collect data for this study. These data were dependent upon the responses of the
Participants.

2. Self-selection of all three subject groups (cooperative distributive education trained employee, non-distributive education trained co-worker, employer) occurred because participants were already in one group or another prior to the start of the study.

3. Random selection of Columbus, Ohio, Type 20 programs and graduates was not possible.

Definitions of Terms

The following definitions will clarify the terminology used in this study.

Vocational Education. The term vocational education refers to organized educational programs directly related to the preparation of individuals for paid or unpaid employment or for additional preparation for a career requiring other than a baccalaureate or advanced degree (P.L. 94-482, Oct. 12, 1976, Part C Definitions, Sec. 195, p. 90 STAT 2211).

Ohio's Type 20 Cooperative Distributive Education Program. This program is defined as a senior-only cooperative program consisting of 7.5 hours of classroom instruction and an average of 15 hours of on-the-job training per week (Ohio's DE Program Description).

Cooperative Distributive Education Plan. The distributive education cooperative plan is an organized pattern of instruction which prepared student trainees for gainful employment and for advancement in marketing and distributive occupations. Periods of school-based instruction are alternated with periods of planned marketing and distributive occupational experiences in bona fide training agencies (Crawford, 1975). Other terms used to identify this concept include:
Distributive Education Graduate Employee. This is defined as an employee working a minimum of 30 hours per week in the same job who has graduated from high school through the twelfth grade cooperative distributive education program in June 1978. The term "distributive graduate" will also be used to identify this employee.

Distributive Education Teacher Coordinator. This is defined as a member of the local school staff who teaches distributive and related subject matter to students preparing for employment and who coordinates classroom instruction with on-the-job training or with occupationally oriented learning activities of students (Crawford, 1975).

Non-Distributive Education High School Graduate Employee (Co-Workers). This is defined as a full-time employee who received a high school diploma without participating in a cooperative distributive education program, and who is employed as a co-worker in the same position and company as the distributive graduate. The terms "nongraduate" and "co-worker" will also be used to identify this employee.

Employer. This is defined as the individual, organization, or business which employs the individuals included in this study.
Job Attitude. For this study, job attitude is defined as: an employed individual's attitude toward the job. It is composed of several factors which indicate an overall attitude towards the job. Job satisfaction (intrinsic, extrinsic), job involvement, and beliefs about work are the job attitude factors considered in this study.

Job Satisfaction. This refers to the effective orientation towards or emotional reaction to the job (or components of the job) resulting from the appraisal or evaluation of the job or job experiences (Lawler, 1973; Locke, 1976). The terms "general job satisfaction" and "overall job satisfaction" will also be used to identify this term as used in this study.

Intrinsic Satisfaction. Intrinsic satisfaction in an employed individual is a function of the degree to which the person feels the satisfaction of higher order needs (self-esteem and self-actualization) is being met through job performance (Lawler and Hall, 1970).

Extrinsic Satisfaction. Extrinsic satisfaction derives from the organizational inducements (pay, job variety, task complexity, etc.) offered to satisfy employees in the performance of their jobs (Seybolt, 1976).

Job Involvement. Katzell, Yankelovich, and others (1975) define this concept as "how salient or important a person's job is to him, including the importance of performing it well" (p. 415). Job involvement may also be viewed as the psychological identification an employee has with work and/or the degree to which the job situation is central to the person's identity (Rabinovitz and Hall, 1977).

Beliefs About Work in General. Beliefs about work in general are the underlying concepts individuals hold about the term "work" (Buchholz,

**Job Performance.** Job performance involves the behavior of workers in relation to the group's or organization's established standards or goals of output or production for the specific duty(ies) of the job (Katzell, Yankelovich, and others, 1975).

**Job Motivation.** Katzell, Yankelovich, and others (1975) define this concept as:

> The process determining what a person will try to do and how hard he will try to do it. These processes partly depend on characteristics of the person, of the situation, and on the relation between the two. (p. 416)

**Perceptions of Prior Education.** Perceptions of prior education are judgmental insights into the adequacy of prior education as preparation for the current job.
CHAPTER II
REVIEW OF THE LITERATURE

This section includes a review of studies concerning the outcomes of cooperative distributive education, cooperative vocational education, and general education as well as a review of literature from other fields on job attitudes and job performance theories and instruments.

Studies of the Outcomes of Cooperative Distributive Education

According to Ashmun and Larson (1970), past research in distributive education tended to emphasize evaluation and follow-up studies. They state:

"Most of this research centered around characteristics rather than outcomes. Therefore, it is difficult to determine whether or not programs are accomplishing what they are supposed to accomplish. There is a definite trend towards the evaluation of outcomes, but as yet appropriate devices and procedures have not been developed to accomplish the task...appropriate measuring instruments should be constructed that are different from the typical survey instruments and comprehensive tests. (p. 63)

Although research in distributive education has progressed since 1970, little comparative research exists on the evaluation of cooperative distributive instruction as it affects graduates' job attitudes, job performance, and perceptions of prior education. Furthermore, neither instruments nor procedures have been developed to measure outcomes on these variables. Studies do exist using independent sampling techniques which compare employed cooperative distributive education graduates on job satisfaction, job performance, and perceptions of prior education."
Outcome Studies

Using independent sampling techniques, Vogeley (1958) compared distributive and nondistributive education high school graduates from three public schools in Erie, Pennsylvania. Comparisons on selected employment factors were made for three groups: forty-six distributive education graduates, forty-six nondistributive education graduates who had been in some phase of distribution since graduation, and forty-six graduates who had not had distributive instruction and had not been employed in distribution. In an analysis of employment after graduation during 1951-1956, Vogeley found that there was no significant difference in employers' ratings of distributive versus nondistributive employees on nine performance traits at a .01 level of confidence. According to Vogeley, such results point to the need to evaluate the organization and purposes of distributive education programs.

Mason (1961) expanded Vogeley's study by analyzing the content of related instruction for part-time cooperative distributive education programs in Illinois. His study was designed to ascertain whether related instruction involved more than preparation for and success in an entry level distributive position. The study showed few if any differences between distributive education graduates and other employees in terms of growth and advancement on the job, although employer opinion tended to favor the distributive education graduates. The study did not involve a paired comparison of the two samples.

As Mason's major focus was occupational growth and advancement for distributive education graduates, he did not identify job attitudes or perceptions of prior education as criteria for evaluation. To measure
job performance he used the criteria of sales volume, group leadership, initiative, knowledge, and experience. Using a Chi Square analysis, Mason found no significant difference between the two groups.

Zancanella (1965) conducted an exploratory study on the effect of the high school cooperative distributive education program on selected employment factors. He compared employed distributive education graduates with other employees. No significant difference was found between the two groups in terms of types of firm, positions, primary job functions, job performance ratings, reasons for changing employment salary, and job satisfaction. This study also did not involve a paired comparison of the two groups. Furthermore, data on factors contributing to job attitude and job performance were not collected.

Wilkinson (1974) compared employed cooperative distributive education graduates with employees on selected employment factors. The samples consisted of fifty-six distributive education graduates and eighty-one employees. There was no significant difference on job satisfaction and job performance measures. Wilkinson concluded that cooperative distributive education provides no better preparation for work than other programs offered in high school. He did not attempt to ascertain why there were no differences between the two groups and did not collect data on perceptions of prior education. The methodology did not include a paired comparison between employed cooperative distributive education graduates and co-workers.

Such studies suggest that cooperative distributive graduates are no better prepared for jobs in marketing and distribution than other employees in terms of job satisfaction and job performance.
Follow-up Studies

The follow-up of former cooperative distributive education graduates is a widely used research technique for evaluating selected aspects of distributive education programs. The majority of the studies sought the following kinds of information: number of students still working where trained; those working in a related field where there was a transfer of skills and knowledge; those in supervisory or managerial positions; those who own and operate their own businesses; the number taking additional training, or who went on for more formal education; those in military service; those who are married and not working; those who have left the community in which they were trained; and information about salaries of graduates. A few researchers in distributive education have conducted follow-up studies of employees' judgment concerning the value of distributive instruction as it relates to job performance.

Haines (1965) made a study of high school cooperative trainees to determine how they fare in the labor market. Questionnaires were sent to 4,036 Michigan high school graduates 10 months after their graduation. There was a 36 percent rate of return on the questionnaires. Major findings were that the unemployment rate was low; among those surveyed; 38 percent were attending college or some type of post-high school institution; 43 percent were not in the labor market; 35 percent of the distributive trainees were working in a distributive occupation; and cooperative distributive trainees were better-than-average students academically.

Haines concluded that both DE employees and employers benefited from the cooperative distributive education training because many trainees
accepted positions with their employer after graduation. Neither employers nor co-workers were included in this follow-up study.

Hecht (1963) conducted a follow-up study of high school distributive graduates of three New York State high schools to determine why they had selected distributive education, whether a substantial number remained in the field, and what their evaluation of the program was after obtaining retail store experience. Six hundred and fifty questionnaires were sent and two hundred and thirteen replies were received for a 33 percent rate of return in the questionnaires. Forty-six percent of the respondents said that the training helped them advance more rapidly in their careers. Thirteen percent remained in the field one to three years after graduation. The methodology did not include employers' judgments concerning the value of distributive training or job performance ratings of DE graduates.

Ely (1964) conducted a follow-up survey of distributive education graduates in Virginia between 1957-1961. One purpose of the study was to identify the impact of the DE program on graduates. The results showed sixty-eight percent of the distributive education graduates were cognizant of job benefits which they received from the program. Three-fourths of the graduates recalled their distributive training work experience with pleasure. Sixty-five percent recalled classroom instruction pleasantly and almost half cited the personal help of the distributive education coordinator. Employers were not asked to give their judgment of distributive education as it relates to job performance.

In three state-wide studies, Miller (1966) in Oklahoma, Roberts (1967) in Wyoming, and Eaton (1967) in Iowa found that cooperative
distributive education graduates felt their education had contributed to employment.

These studies suggest that employed cooperative distributive education graduates agree that their prior education has helped in their current jobs. Mason (1961) also reported that employers were positive in their assessment of cooperative distributive education as it related to the graduates' job. Although the studies cited provided important information, they have failed to compare employers' and employees' perceptions of high school level distributive education as it relates to employees' current job performance.

Present research in distributive education does not provide data on the value of distributive instruction as it relates to job performance. No studies have compared employees' and employers' perceptions of high school cooperative distributive education and their actual job attitudes and job performance ratings. On the other hand, this study's methodology does compare these variables.

Survey of the Literature on the Evaluation of Cooperative Vocational Education Programs

Evaluation studies of cooperative vocational education other than cooperative distributive education (Business and Office, Agriculture, Diversified cooperative training etc.) follow the pattern already demonstrated in distributive education research: follow-up studies, and outcome studies. The results from these studies are similar to those in distributive education research in that they are conflicting and hard to compare, due to the divergent methodologies used (Reimer, 1976; Stromsdorfer and Fackler, 1972). The majority of research in cooperative
vocational education used variables other than job attitudes, job performance and perceptions of prior education (see Andrews, 1954; Beck, 1971; Benjamin, 1967; Bournozos, 1963; Dillon, 1946; Eninger, 1965; Ferguson, 1968; Haines, and Coleman, 1964; Haines and Ozzelo, 1966). The most appropriate prior studies for the present research effort came out of distributive education. However, several cooperative vocational education studies used variables of interest to this study and report results similar to distributive research (see Hamburger, 1965; Holloway, 1967; Kaufman, 1967; Reimer, 1976; Sanders, 1967; Stronsdorfor and Fackler, 1973; Tuttle, 1965; and Wohl, 1968).

Beck's (1971) methodology involved a comparison of female graduates of the Class of 1968 from high schools in southeastern Pennsylvania. Beck compared cooperative education graduates with noncooperative education graduates on ten criteria related to job performance:

1. Cooperativeness
2. Dependability
3. Initiative
4. Quality of work performed
5. Overall value of the organization
6. Absenteeism and/or tardiness
7. Content on the job
8. Quality of work performed
9. Grooming and appearance
10. Potential for advancement

In all ten categories the noncooperative graduates were rated statistically higher than the cooperative graduates. Beck suggested that
schools included in the study area examine their programs carefully. No attempt was made to pair employee groups.

Sanders (1967) found no statistical significant difference between cooperative and vocational-technical students with respect to scholastic rank or grade point average. Vocational-technical graduates reported higher average current salaries than cooperative graduates. Current employers gave higher job performance ratings to cooperative graduates on personal characteristics, work habits, and overall competencies. Sanders made no direct comparison between the two employee groups.

Research in General Education Affecting Job Satisfaction and Job Performance

Studies on job satisfaction and job performance in general education have attempted to link level of education, satisfaction, and performance. In general, these studies suggest that for workers with less than a college education, job satisfaction does not increase with years of education. At this level, there is no correlation between education and job satisfaction. Studies have shown, however, that college educated workers are consistently more satisfied with their jobs than others. Research indicates that there is no payoff for college training unless the worker has received a degree (Berg, 1971; Fullan, 1970; Quinn, 1975; Sharp and Krisjanson, 1965; Singh and Baumgartal, 1966).

These studies have, on the other hand, failed to investigate the influence of specialized educational training on individuals (Quinn, 1975). The major areas of investigation have included the effect of quality of education and level of education on job satisfaction and job performance.
Overall Job Satisfaction

Researchers in psychology treat overall job satisfaction primarily in relation to other concepts. Overall job satisfaction is regarded as one variable consisting of two factors: intrinsic satisfaction and extrinsic satisfaction (Billings, 1979). According to Lawler (1973) there is no theory of overall job satisfaction which satisfactorily explains the term. A great deal is known about factors related to job satisfaction, but little is known about the causal basis for the relationship (Lawler, 1973). Distinguishing between the concepts of "factor" job satisfaction and "overall" job satisfaction, Lawler (1973) makes the following points: facet or factor job satisfaction refers to people's affective reaction to particular aspects of their jobs—pay, supervision, and promotion opportunities (pp. 64-66); and, overall job satisfaction refers to a person's affective reactions to his total work role (pp. 64-66). One reason for distinguishing between factor or facet job satisfaction and overall job satisfaction is that a number of theories refer to the fact that overall job satisfaction is determined by a combination of affective reactions to the various facets of jobs (Lawler, 1973). Lawler (1973), however, points out that the theories differ on how these reactions combine to determine overall job satisfaction.

Locke (1976) provides a somewhat different definition of "overall job satisfaction" which he regards as an emotional response "pleasurable or positive emotional state resulting from the appraisal of one's job or job experience" (p. 1300). Further, this emotional response can only be
discovered introspectively by considering mental contents and processes (Locke, 1976).

Thus, as both Lawler (1973) and Locke (1976) indicate, overall job satisfaction is a positive emotional state experienced by the job holder. The feeling of overall job satisfaction derives from a careful evaluation of the individual's job. In other words, overall job satisfaction has both descriptive and evaluative aspects (Billings, 1979).

The present study considers overall job satisfaction in terms of three component aspects— intrinsic job satisfaction, extrinsic job satisfaction, and their summed total for general job satisfaction. These three aspects of job satisfaction were expected to provide a more complete picture of the concept of overall job satisfaction. Previous studies comparing employed distributive education graduates to other employees did not consider these three component factors in the measurement of overall job satisfaction.

Billings identifies four possible effects any vocational education instruction could have on an employed individual graduate's job satisfaction:

1. Vocational education instruction may lead to better jobs for graduates, better job outcomes, and higher job satisfaction. (p. 15)
2. Vocational education instruction may lead to a better fit between the person and the job. (p. 16)
3. Vocational education instruction may decrease job satisfaction by increasing perceived inputs and not affecting perceived outcomes. (p. 17)
4. The effects of vocational education instruction on job satisfaction may be small, due to the many causes of satisfaction. (p. 18)

Researchers have not yet examined the influence of distributive education training on job satisfaction in ways indicated by the above
four statements. Certainly, as Billings comments, the effects of vocational education instruction on job satisfaction are likely to be complex.

**Intrinsic/Extrinsic Satisfaction**

Several authors have dealt with intrinsic or extrinsic satisfaction. Intrinsic satisfaction is related to an individual's higher order needs for self-esteem and self-actualization (Lawler, 1973). Intrinsic satisfaction stems from the individual who takes his reward directly from the performance itself. These rewards are internally mediated, since the individual rewards himself. Lawler and Hall (1970) comment that intrinsic satisfaction comes from fulfillment of higher order needs as these needs are dependent on job performance. Osipow (1973), in discussing the study of intrinsic satisfaction by Ewen, Smith, Halin, and Locke (1966) comments:

... intrinsic satisfaction was more important than extrinsic and seemed to affect extrinsic satisfaction. These findings do not support Herzberg's (1966) theory, which would say that if intrinsic satisfiers are present along with extrinsic, the presence of the extrinsic would enhance satisfaction. (p. 210)

As Billings notes, intrinsically satisfied individuals are motivated on the job because of some subjective rewards or feelings that they expect to receive or experience as a result of performing well. Cooperative distributive education training should be able to produce graduates who take pride in their work and feel a sense of accomplishment in a job well done. An intrinsically motivated individual does well on the job not because of extrinsic rewards, but because of feelings of pride in work, accomplishment, self-esteem, and similar motivation.
Extrinsic rewards which enhance job satisfaction are part of the job and given by others. Hence, they are externally mediated and are more closely related to an individual's lower order needs for security or survival, safety, and social belongingness (Lawler, 1973). Satisfaction stemming from extrinsic rewards is part of the on-the-job training phase of cooperative distributive instruction. This training introduces the student to pay rates, promotion processes, working conditions, recognition, supervision, company policies, co-workers, and the work itself. The degree to which trainees accept these rewards determines their extrinsic satisfaction.

In this study, intrinsic satisfaction was considered to be more important than extrinsic. This is assumed because it was expected that distributive education training encourages students to pursue the satisfaction of higher order needs. This assumption is based on the fact that an entry level job is already part of the distributive graduate's life activities.

Job Involvement

Lawler and Hall (1970) suggest a recent view of job involvement that may provide the most useful definition for the purposes of this study. They comment that "psychological identification with one's work...as well as...the degree to which the job situation is central to the person and his identity" are the important factors in job involvement (pp. 310-311). This definition identifies job involvement as a component of self-image or psychological identification with the job. The job-involved person is one for whom work is central to life. The individual is personally affected by the entire job situation, the work itself, co-workers, and the company (Rabinowitz and Hall, 1977).
Some researchers have hypothesized a relationship between education and job involvement, although Siegel and Ruh (1973) found no direct relationship between the two in their research. On the other hand, they found that education moderated the relationship between job involvement and participation in decision making. Jones, James, and Bruni (1975) likewise concluded that there was no relationship between years of education (or highest degree obtained) and job involvement for a sample of civil service military engineering employees. In another study, Ruh and White (1974) demonstrated that job involvement was negatively related to education for rank and file workers and managers but was not related to education for the overall sample. Gurin, Veroff, and Feld (1960), however, found a significant positive relationship between job involvement and years of education. Those with higher levels of education expressed greater ego-involvement due to the centrality of the job to their need gratification. In all of these studies job involvement was not considered in relation to training programs such as cooperative distributive education instruction.

Billings states that job involvement may be a desirable and reasonable product of vocational education. By demonstrating that an occupation is important and is worth identifying with, vocational education encourages involvement. Cooperative distributive education, through on-the-job training, demonstrates that job involvement is a worthwhile product of the interaction between the individual and the job setting.

Lodahl and Kejner (1965) have developed an instrument to measure job involvement. Their findings suggest that job involvement is an independent attitudinal factor. Most job involvement research today
Beliefs About Work in General

Buchholz (1978) completed a study of contemporary beliefs about work in American society. On the basis of this study Buchholz concluded:

... beliefs constitute assumptions about the world in which a person lives, the validity of which he or she does not question. The belief system defines the world for an individual, constitutes an information system to which a person looks for answers, and organizes the world of ideas, people and authority such that the individual functions in ways he or she considers effective. (p. 22)

An important result of vocational instruction may be a change in individuals' underlying beliefs about work in general and the part it should play in their lives (Billings, 1979). Cooperative distributive education supports belief in the American private enterprise as it applies to work and belief in the concept that work is good in itself (Crawford, 1967, 1975).

In her study, Buchholz (1978) identified five different systems of belief about work. These five belief systems include:

1. **The Work Ethic.** Work is good in itself and bestows dignity on a person. (p. 220)

2. **The Organizational Belief System.** Work takes on meaning only as it affects the group or the organization for which one works, and as it contributes to one's status and rise in the organization hierarchy. (p. 220)

3. **Marxist-Related Beliefs.** Productive activity or work is basic to human fulfillment. Work as organized within a capitalist system does not allow people to fulfill themselves as creative and social individuals. (p. 220)

4. **The Humanistic Belief System.** Work is a fundamental way in which people fulfill themselves as human beings. What happens to human beings in the work place is thus more important than the output of the work process. (p. 220)

5. **The Leisure Ethic.** Work has no meaning in itself, but only finds meaning in leisure. Work is necessary for human beings to engage in society's activities, but fulfillment is found in
leisure activities. (p. 220)

Using this framework, Buchholz developed a questionnaire with belief statements as items. The results of her survey supported the hypothesis that nonmanagement personnel (production workers, maintenance workers, clerical workers, and technicians) would express a stronger commitment to Marxist-related beliefs than would managerial personnel (middle managers and top management). Further results showed top management were less committed to organizational beliefs than middle management, union leaders, and hourly workers. Top management scored significantly lower on the leisure belief system than did union leaders. The commitment to the work ethic is strongest among young people and weakest for the older age group progressively over 30 years of age. Educational levels are not significant in the work ethic orientation or the humanistic orientation. Educational level does make a significant difference in the organizational belief system orientation, which tends to decline as educational level increases. This study did not consider specialized vocational training as it affects the five systems of belief about work. Therefore, the present study will extend Buchholz's work by sampling cooperative distributive education graduates.

Job Performance

Job performance is usually considered in terms of three factors: motivation in the context of the employee's job effort (Greene, 1972; Campbell and Pritchard, 1976); goal setting (Locke, 1968); and satisfaction (Greene, 1972; Schwab and Cummings, 1970). An elaboration of each of these factors is necessary at this time to identify the non-causal comparative direction of this study of these three factors relating to job performance.
Five decades after the initial investigation of the satisfaction-performance relationship, the topic is still the subject of controversy for both practitioners and researchers (Greene, 1972). In fact, researchers have concluded that "there is no present technique for detecting the cause-and-effect of satisfaction and performance" (Sutermeister, 1971, p. 43). According to Schwab and Cummings (1970), current opinions still imply that satisfaction and performance are causally related, although in some cases, the assumed cause has become the effect, and in others, the relationship between these two variables is considered to be a function of additional variables. In this study, job performance and satisfaction are not investigated from a "cause-and-effect" perspective.

An employee's job motivation is another variable interacting with job performance on a "cause-and-effect" basis (Greene, 1972; Campbell and Pritchard, 1976). Thus, an employee's job motivation leading to job performance is a function of the employer's giving rewards to employee job performance to obtain a specified level of performance (Greene, 1972). Greene feels that if the reward practices are perceived by the employee as not being of value or of the proper magnitude, the employee's motivation to perform the tasks will be low. This study will not direct its attention to the effects of motivation on job performance. This study will compare subject groups on a job motivation variable to be discussed later.

The second component factor of job performance as defined here is identified by Locke (1968) as goal setting. Locke's (1968) goal-setting process centers upon conscious goals or intentions and task performance. In other words, Locke's (1968) use of the terms "goal" and "intention"
refer to what the individual is consciously trying to do.

Performance can be determined by the goals individuals set for themselves. Locke (1968) states that the more specific and challenging the goal, the higher the level of performance. Once individuals set goals, they must accept those goals before affecting performance (Locke, 1968).

When employers are asked to evaluate an employee's job performance, it is understood that the employee will have goals matching the job's demands, as established by the employer. The variation between the employer's goals for the individual's job performance and the individual's own job goals indicate the level of job performance. The level of job performance may be acceptable or unacceptable. Billings comments that "Vocational (cooperative distributive education) instruction may increase performance by altering the performance goals of the individuals" (p. 26).

For this study, the individual's job performance goals will be measured through employers' rating of performance, based upon employer goals. If cooperative distributive education training affects performance, it will have helped to match the employed graduate's goals with the employer's job performance expectations.

**Achievement Motivation**

Motivation, as Campbell and Pritchard (1976) view it, is identified with job performance. From this view, performance is usually expressed as a function of ability times motivation. Some difficulty arises from this expression, however, because of the need to equate motivation with a particular behavior or physical state. For example, the term is sometimes used synonymously with deprivation level, effort expended, general activity level, or degree of satisfaction. Motivation appears to be a more
meaningful concept, however, if it is regarded merely as a general term identifying a class of independent and dependent variable relationships. Motivation can be viewed as a general term for the determinants of (a) the choice to initiate effort on a certain task, (b) the choice to expend a certain amount of effort, and (c) the choice to persist in expending effort over a period of time (Campbell and Pritchard, 1976). Billings summarizes these determinants in relation to vocational education as follows: "An employee is motivated to perform if effort is seen as leading to performance, if performance is seen as leading to work outcomes, and if these outcomes are desired by the individual" (p. 25).

Campbell and Pritchard (1976) discuss a tightly constructed expectancy valence theory of task behavior developed by McClelland, Atkinson, and Associates, which is firmly grounded in specific motives leading to performance. Within the framework of this theory, need for achievement is defined as a predisposition to strive for success. Campbell and Pritchard (1976) comment:

This model of achievement motivation is consistent with the composite expectancy model except for one important discrepancy. It is confined to one particular first level outcome defined in a very specific way (I-l-P; I - incentives; P - performance probability of success). That is by definition the valence of performance goals is completely dependent on the perceived probability of being able to achieve it. (p. 114)

High school cooperative distributive education addresses this first level outcome by training and instructing students to perceive the probability of job success through incentives and desirable accomplishments. On-the-job work performance and related classroom instruction are definite program processes to affect the individual's need for achievement. Determining a difference in need for achievement between employed
distributive education graduates and their co-workers would help to identify the degree of learned motivation instilled through the distributive education training program.
CHAPTER III
METHODS AND PROCEDURES

This study was designed as a comparison of full-time employees who participated in a high school cooperative distributive education program and their co-workers who did not participate in such a program. The purpose of this study was to appraise the effect of high school cooperative distributive education programs on employed graduates by using selected factors related to job attitudes, job performance, and perceptions of prior education.

This chapter describes the study design, data collection, and methods of data analysis. It includes sections on the study's overall approach, instrument development, the pilot study, the determination of populations and samples for Columbus, Ohio, the overall design, the procedures, and the mode of analysis.

**Approach**

This research consisted of a pilot study and a main study. The pilot study involved a random selection from eight State of Ohio Type 20 DE programs and graduate students from these programs, their co-workers, and employers. The pilot study procedures were duplicated in the Columbus, Ohio, main study. The study was conducted with Type 20 DE program graduates one year after their June 1978 high school graduation. The major dependent variables were job attitude sub-factors, job performance and perceptions of prior education. The independent variables were the
Instrumentation

A review of the literature indicated that instruments in use in industry (business and organizations) and education were appropriate in measuring the dependent variables. A resource used in identifying the six needed instruments was *Vocational Education Measures: Instruments To Survey Former Students And Their Employers*, a handbook published by The National Center for Research in Vocational Education, edited by Kenney E. Gray, et al., (in press 1979). This new *Vocational Education Measures* handbook was brought into existence because The National Institute of Education requested an up-to-date handbook, current with the literature, on measures of occupational attitudes and occupational characteristics. *Vocational Education Measures* is designed to provide an assortment of instruments currently in use or available for use in selected state vocational education agencies, secondary and post-secondary schools or business and industry, and an abstract of each instrument. Four types of instruments are contained in the handbook. They are:

1. **Job Satisfaction.** Instruments which have items that are purported to measure employees' perceptions of their satisfaction with components of their job (e.g., pay, promotions, supervision, co-worker, work, self concepts and self interests).

2. **Job Performance.** Instruments which have items that are purported to measure employees' performance in the various dimensions/components of employment (e.g., knowledge, skills, attitudes, and work attendance) as perceived by the employer.
3. Former Students' Perceptions of Training. Instruments which have items that are purported to measure former students' perceptions of the adequacy of components of their training program (e.g., competencies acquired in various skill areas, and placement services) relative to their current employment.

4. Employers' Perceptions of Training. Instruments which have items that are purported to measure the effectiveness of components of employees' preparation and training for employment (e.g., knowledge and skill areas) as perceived by an employer of persons who recently completed a vocational job training program.

In addition to the Vocational Education Measures handbook instrument selection criteria additional criteria for the selection of instruments to be used in this study include:

1. Each instrument should have reported reliability and validity information or be recognized as the most widely used instrument in its area.

2. The instrument should have a body of research detailing its development and intended population.

3. The instrument should have been used with samples in a similar age range, minimum education level, and occupational areas related to the study's interests.

On the basis of these criteria, three instruments were selected from the handbook on Vocational Education Measures. They include:

1. Minnesota Satisfaction Questionnaire (MSQ) Short Form, measuring (a) Intrinsic Job Satisfaction, (b) Extrinsic Job
Satisfaction, and (c) General Job Satisfaction (1977).

2. Employee Performance Appraisal (Bruce, 1976).


Three instruments were selected on the basis of information in Job Satisfaction and Performance Measures: The State-Of-The-Art, (Billings, 1979) within the handbook on Vocational Education Measures. These include:


These instruments, which are generally used in industrial, psychological, and educational research, have not been in widespread use in distributive education research. Because the majority of these instruments have reported reliability and validity or are extensively used, new instruments were not developed. Furthermore, this study involved reliability tests on each instrument in both the pilot study and the main study (see pp. 37, 38). Validity on each instrument for this study consisted of thirty-six DE educators and seventy-six business people previewing each instrument for applicability to the sample. All instruments were accepted by these two groups. The actual survey form, the above instruments, and description of each instrument are included in Appendixes A and B. Appendix C details the scoring procedure recommended by the developers. Appendix D includes letters of permission for the use of instruments 1, 2, 4, 5 and 6 above. Questionnaire 3 above is in the public domain and available through the State of Texas Education Department or the handbook on Vocational Education Measures. (Note:
Copyright laws prohibit the publishing of, Minnesota Satisfaction Questionnaire, Employee Performance Appraisal, and Beliefs About Work instruments in this dissertation.)

Employee subjects (DE graduates and non-DE workers) each received four instruments and one questionnaire. Two instruments measured the present job, including job satisfaction and job involvement, one measured achievement motivation, one measured beliefs about work, and the questionnaire asked for their perceptions of their prior education.

Employer subjects received two instruments and one questionnaire. The questionnaire asked for perceptions of the prior education of both types of employee, one instrument was designed to measure the job performance of each employee, and one instrument was designed to elicit the employer's beliefs about work.

Pilot Study

A pilot study was conducted to determine the appropriateness of the methodology for this ex post facto study. Specifically the pilot study was conducted to determine the following:

1. Instrument reliability for the sample.
2. The homogeneity of the within-program variances.
   (The assumption was made that there is a within-program variance and that variances were the same for the different programs.)
3. Whether the data collection process was feasible.
4. Whether instructions to each group of subjects were clear and readily understandable.
5. Whether the general format of the instruments was clear and the instruments easy to complete.
6. The average amount of time required for each group to complete
the instruments.

7. Whether the proposed statistical analyses were appropriate.

8. The sample size needed for the Columbus, Ohio, study.

Pilot study data were analyzed at The Ohio State University Instruction and Research Computer Center.

Eight randomly selected Ohio Type 20 program distributive education teacher-coordinators were asked to select at random four program graduates who were employed full-time. The coordinators and researcher contacted each of the thirty-two employed program graduates for participation in the study. A matched co-worker who had not received Type 20 program instruction was identified and asked to participate. Co-workers were matched to Type 20 program graduates in terms of the comparability of their jobs, the employing organization, the employer or supervisor, the length of time on the job, and the fact that they were high school graduates. Employers were asked to rate the matched employees on job performance and perceptions of prior education and identify their own beliefs about work. The matched employees were given the instruments to complete on the job, if agreeable with the employer. Otherwise the instruments were filled out during a break period. The employees were asked to identify: (1) their own beliefs about work; (2) their own level of achievement motivation; (3) their commitment towards job involvement; (4) their level of satisfaction with the current job; and (5) their prior high school education as it has assisted them in the current job.

Reliability tests were performed on the instruments used in the pilot study. The instruments used in this study were of two types: non-keyed, that is those instruments with no right or wrong answers, and
keyed, or those instruments which have right or wrong answers. Lynn's "Achievement Motivation" instrument was the only keyed response instrument used. Kuder and Richardson (1937) address these two types of instruments in two formulas: K-R 8 for non-keyed responses and K-R 21 for keyed responses. Using the K-R 8 formula the reliability assumption that items and test measure the same thing was made (Kuder and Richardson, p. 156; Reliability measures, The Ohio State University, PROGLIB, 1976). The Horst correction for K-R 21 was applied during reliability analysis to take into account the extent to which the Lynn test might approach the maximum variance for an instrument with its distribution of item difficulties (Guilford, 1973, pp. 416-419). Using these formulas, then, the reliability coefficient obtained for each instrument compared favorably with the reliability coefficients reported by their developers. Where the developers did not report a reliability coefficient for an instrument, the reliability data from the pilot study were used. These results are reported in Appendix E.

Each of the pilot study's twenty-five variables of interest for sample size determination (See Appendix F) were considered in determining homogeneity of the within-program variances and the sample size needed in the Columbus, Ohio, study. At this point, it was determined that randomization for the Columbus, Ohio, sample selection was not possible. Thus, pilot study data were analyzed as paired scores through paired t-tests on each variable. In these tests, individual scores are of interest only in terms of the differences between DE graduate scores and co-worker scores.
For each of the twenty-five variables of interest, for sample size
determination, Hartley's test for homogeneity of the within-program
variances was conducted at the .01 alpha level (Kennedy, 1977). Assuming
an alpha level of .01 for each of the twenty-five variables, Bonferroni's
inequality process identifies an overall level of no more than .25 (Neter
and Wasserman, 1974). Thus, an overall level of approximately .25 was
accepted for the twenty-five tests (Neter and Wasserman, 1974). Equal
n's (n=4) existed within all eight pilot study programs. In each case,
the null hypothesis of homogeneity of variance could not be rejected. The
critical region for rejection with α = .01 is a ratio of ≥ 249 (Neter and
Wasserman, 1974). The range of ratios for all twenty-five pilot study
variables was 6.06 to 227.65. On this basis, it is assumed that there is
homogeneity of the within-program variances.

The sample size for the Columbus, Ohio study was determined by the
process reported in Appendix G and is presented on page 43.

The pilot study further showed that the process of collecting data
was feasible, that the subjects felt the instructions were clear and
understandable, and that the general format of the instruments and ease of
response were good. It was further determined that thirty minutes was
the average total completion time for all instruments. Given the variance
results described above, the modes of statistical analysis selected for
the Columbus, Ohio, study seemed appropriate.

**Research Design**

The design used in this study was a comparison between full-time
employed high school Type 20 program graduates and co-workers who
graduated from high school without such training. Paired subjects from
the two groups were working in the same job within the same organization.
This is a basic ex post facto design (see Figure 1).

<table>
<thead>
<tr>
<th>Group</th>
<th>Level of the Independent Variable</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed Type 20 Program Graduate</td>
<td>DE training</td>
<td>1. Job Attitudes (5 factors)</td>
</tr>
<tr>
<td>Employed Nondistributive Education High School Graduate</td>
<td>No DE training</td>
<td>2. Need-to-Achieve</td>
</tr>
<tr>
<td>Employers</td>
<td></td>
<td>3. Employee's Perceptions of their Prior Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Employer's rating of employees' job performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Employer's rating of employees' prior education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Employer's Beliefs About Work</td>
</tr>
</tbody>
</table>

Figure 1. Design of the study showing all three groups.


The purpose of this design was to determine the existence of differences in behavior between two groups of employees on the dependent variables; between the employer group, co-worker group, and DE graduate employee group on beliefs about work; and between the employers' ratings of the co-worker group and DE graduate employee group on job performance and perceptions of prior education. It was hypothesized that the Type 20 program influences program graduates to demonstrate more positive
job attitudes and better job performance skills, and feel more positive about their prior training than do co-workers who did not receive DE training.

**Procedure**

There were 14 Type 20 programs in Columbus, Ohio, during the 1977-78 school year. These 14 programs graduated 343 students. Of these 343 graduates, 240 graduates were reported to be working full-time on January 31, 1979. It was assumed that each Type 20 program would have an average of 17 employed graduates, a sufficient number for the random selection of 7 employees from each program. The participants in this study were full-time, employed Type 20 distributive education graduates and their matched co-workers (nondistributive education) and employers.

A two-stage cluster sample procedure was established for use with Columbus, Ohio, Type 20 programs. First, a simple random sampling procedure was established to select both the eight Type 20 distributive education programs and the seven full-time graduate employees from each program. The method of selecting the sample was as follows:

1. Permission to conduct the study was obtained from the assistant superintendent and director of distributive education for Columbus Public Schools (see Appendix H).
2. All Type 20 programs in Columbus, Ohio, were identified from the DE director's listing.
3. Each Type 20 program surveyed was selected by assigning numbers to each program and drawing numbers from a hat until the required sample size of eight programs was reached.
4. Graduates' names were obtained from each selected Type 20 pro-
gram.

5. The distributive coordinator for each Type 20 program and/or the researcher called each graduate to determine his/her employment status.

6. A list was obtained of the names of full-time employed graduates' from each Type 20 program.

7. Each full-time employee to be surveyed was selected by assigning numbers to each name and drawing numbers from a hat until the required sample size of seven employed graduates for each program was reached.

8. An appointment was made with full-time employed graduates who wanted to participate and who had a co-worker and employer willing to cooperate.

The above eight steps allowed the Columbus, Ohio, sample selection to be the same process as was accomplished in the pilot study. The two employee groups were self-selected on the basis of whether or not they had had Type 20 program distributive education instruction. As Billings (1979) comments concerning the matched pair sample design: "This approach would begin to control for the effects of job organizational characteristics, but individual characteristics (values, innate abilities, etc.) would not be controlled for, due to non-random assignment to groups" (p. 31).

Kerlinger (1973) states that if no relation exists between matching variables then matching is irrelevant on these variables (p. 322). Vogley (1958), Mason (1961), and Zancanella (1965) found no significant difference between cooperative distributive education graduates and
co-workers in terms of high school grade-point average, intelligence quotient, rank-in-class, sex, race, age, and additional personal data. Therefore, the assumption is made that matching according to the variables of high school grade point average, intelligence quotient, rank-in-class, sex, race, and age is irrelevant to this study. These factors are assumed to be equal and constant for the two employee comparison groups.

The sample size was determined from the pilot study using Ohio Type 20 distributive education programs and students. The process used to determine sample size using the pilot study is reported in Appendix G. The results from the sample size determination, using the most conservative estimate, gave the following parameters: (1) number of Type 20 Columbus, Ohio program clusters = 8; (2) number of graduates needed for sampling within each program cluster = 7; (3) total DE employee sample = 56, total co-worker employee sample = 56, total employer/supervisor sample = 56, overall sample size = 168. The Columbus, Ohio, Public School System granted permission to conduct the study among its Type 20 DE programs.

Pertinent Data for the Columbus, Ohio Survey

The two-stage cluster method of selecting programs and subjects within programs was not feasible. The pertinent data therefore, is the difference between paired subjects using paired t-tests as the statistical process. Random selection of programs was abandoned for the following reasons: (1) a school had been closed; (2) two schools did not have enough full-time employed graduates; and (3) coordinators for three programs were not available. The remaining eight programs were used for the study.
Random selection of students was abandoned for the following reasons: (1) graduates refused to participate; (2) co-workers were not available; (3) graduates had entered college, moved, married, were employed part time, or were not available. As a result all available employed graduates within each program were used in the survey.

The procedures actually followed in this study, then, were as follows:

1. Clearance was received from The Ohio State University for the use of human subjects (see Appendix I).
2. Approval was obtained from Columbus, Ohio school district (see Appendix H).
3. Fourteen Type 20 programs were identified through the director of the Columbus Distributive Education Division.
4. The State of Ohio's Vocational Education Form 23, "Placement of Program Completions in Distributive Education Type 20 Programs" for January 31, 1979, was reviewed to identify known full-time employed graduates. Two hundred and forty graduates were identified from a total population of 343 graduates.
5. Contact made with eight Type 20 program coordinators to obtain the universe of known full-time employed graduates.
6. Contact made with graduates on each program's list in order to determine their employment status.
7. The coordinator's assistance was obtained in order to meet with subjects.
8. Subjects were met and the purpose of the study explained.
9. The survey was left with each subject and picked up later.
10. Data analysis was completed at the Instruction and Research
Computer Center, The Ohio State University.

The instruments received clearance for the use of human subjects from The Ohio State University. Each participant signed a "Consent to Participate" form prior to filling out the survey (see Appendixes A and I). The instruments and questionnaire were administered separately to each participant. The two employee subject groups were compared on the following variables: job attitudes (intrinsic, extrinsic and general job satisfaction, job involvement, and beliefs about work), job performance (sub parts), need-to-achieve motivation, and perceptions of prior education. The subjects' employers also rated them on job performance and perception of prior education. The employers were further surveyed about their beliefs about work.

Treatment of the Data

All instruments for each of the three groups was hand scored. These scores and demographic data were key punched onto IBM cards and verified. The data were analyzed through the computing services provided by The Ohio State University computer center. The Statistical Package for the Social Sciences (SPSS), Biomedical Computer Programs, P-Series 1979 (BMD), and Statistical Analysis Systems (SAS) were the three program packages selected for data analysis (Nie et al., 1970; Dixon and Brown 1979; Barr et al., 1979). The data analysis made for each hypothesis encompassed by the study was as follows:

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Mode of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Job Attitudes</td>
<td></td>
</tr>
<tr>
<td>1.1 Job Satisfaction</td>
<td></td>
</tr>
</tbody>
</table>
1.1.1 Paired $t$-test; directional (one tail). Intrinsic and extrinsic satisfaction; DE employees only.

1.1.2 Paired $t$-test; two tailed. Extrinsic satisfaction between DE employees and co-workers.

1.1.3 Paired $t$-test; directional (one tailed). Intrinsic satisfaction between DE employees and co-workers.

1.1.4 Paired $t$-test; two tailed. General job satisfaction between DE employees and co-workers.

1.2 Job Involvement
Paired $t$-test; directional (one tailed). Job involvement between DE employees and co-workers.

1.3 Beliefs About Work
1.3.1 Paired $t$-test; directional (one tailed). Work ethic belief between DE employees and co-workers.

1.3.2 Regression analysis of variances using dummy coding. Each Belief
2. Job Performances

Paired $t$-test; directional (one tailed). Performance ratings between DE employees and co-workers.

3. Perceptions of Prior Education

3.1 Paired $t$-test; directional (one tailed). Perceptions of prior education between DE employees and co-workers.

3.2 Paired $t$-test; directional (one tailed). Perceptions of prior education between employer's perceptions of DE employees' prior education and employer's perceptions of the co-worker employees' prior education.

3.3 Paired $t$-test; directional (one tailed). Perceptions of prior education between employer's perceptions of the DE employees' prior education
and the DE employees' perceptions of their prior education.

4. Need-to-Achieve

Paired t-test; directional (one tail). Achievement motivation between DE employees and co-workers.

Each of the twelve hypotheses was tested at the .05 level of confidence.
CHAPTER IV
ANALYSIS OF DATA

The purpose of this study was to appraise the effect of high school cooperative distributive education programs on employed graduates using selected factors related to job attitudes, job performance, and perceptions of prior education. The methodology involved a comparison between employed graduates of cooperative distributive education programs and their co-workers on job attitudes, job performance skills, and perceptions of prior education. The hypothesis was made that employees who received cooperative distributive education are better prepared for entry level marketing and distributive jobs on the selected criteria than co-workers without such instruction.

More specifically, the following hypotheses were proposed:

1. **Job Attitudes**
   1.1 **Job Satisfaction**: *Intrinsic and Extrinsic Satisfaction and General Satisfaction*
   
   1.1.1 Employed cooperative distributive education graduates will show significantly higher intrinsic than extrinsic satisfaction.

   1.1.2 There will be no significant difference on extrinsic satisfaction measurements between employed cooperative distributive education graduates and paired co-workers.
1.1.3 Employed cooperative distributive education graduates will have a significantly higher intrinsic satisfaction measurement than paired co-workers.

1.1.4 There will be no significant difference on overall job satisfaction scores between employed cooperative distributive education graduates and paired co-workers.

1.2 Job Involvement

Employed cooperative distributive education graduates will show higher job involvement than paired co-workers.

1.3 Beliefs About Work

1.3.1 Employed cooperative distributive education graduates will express a stronger work ethic than paired co-workers.

1.3.2 There will be no significant difference between employed cooperative distributive education graduates, co-workers, and employers on the belief about work sub-scales.

2. Job Performance

Employed cooperative distributive education graduates will have higher performance ratings than paired co-workers.

3. Perceptions of Prior Education

3.1 Employed cooperative distributive education graduates will rate their prior personal and technical skill training, as it relates to the current job situation, higher than will paired co-workers.
3.2 Employers will perceive cooperative distributive education graduates more favorably on personal and technical job skill training than paired co-workers.

3.3 Employed cooperative distributive education graduates will perceive their prior training more favorably, as it relates to the current job situation, than employers/supervisors on person and technical job skills.

4. Need-to-Achieve Motivation

Employed cooperative distributive education graduates will have higher levels of achievement motivation than paired co-workers.

Each hypothesis was tested at the .05 level of confidence.

Response Rates—Survey and Items

Fifty-six sets of three instruments each were given to the Columbus, Ohio, sample of DE graduates, non-DE graduates and employers in the eight participating distributive education programs. Forty-four completed sets which were suitable for data analysis were obtained from 132 job-matched individuals. This is a 79 percent return rate based upon the required sample size of 56 sets of 3, or 168 job-matched individuals.

Survey nonresponse follow-up was conducted with the following results:

1. Two complete sets (6 subjects) dropped out of the study due to work load, time factors or objections to the study.

2. Two sets (6 subjects) lost their instruments and refused to complete them a second time.
3. Two sets (6 subjects) of surveys were dropped from the study because they did not meet the requirements for matching and/or contained incomplete responses to instruments.

4. Four DE programs could not obtain their quota of seven sets because they had an insufficient number of fully employed graduates. This amounted to the loss of six sets (18 subjects) from the study.

Less than one percent of the instrument items were missing on the forty-four returned sets within each sampled group. Appendix J provides the nonresponse rate per instrument within each survey group. All items not responded to were given an "undecided," "neutral," or "zero" rating depending upon the instrument.

**Reliability of Instruments**

The same reliability tests were run on the Columbus, Ohio, sample as were performed in the pilot study. Most of the reliability coefficients obtained compared favorably with the reliability coefficients reported in the pilot study and the data reported by developers. Lynn's "Achievement Motivation Questionnaire" showed lower reliability for the Columbus, Ohio, sample than for the pilot study groups. Appendix K reports the results by instrument.

**Demographic Data**

Demographic data were collected to establish that the employed distributive education graduates and their co-workers were properly paired. Tables 1 and 2 present descriptive information on the paired
employees by course of study and sex.

Table 1
Employee Course of Study in High School

<table>
<thead>
<tr>
<th>Course of Study</th>
<th>DE Employees</th>
<th>Co-Worker Employees</th>
<th>Combined Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>DE</td>
<td>44</td>
<td>100.0</td>
<td>44</td>
</tr>
<tr>
<td>Academic</td>
<td>15</td>
<td>34.1</td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>29</td>
<td>65.9</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>100.0</td>
<td>44</td>
</tr>
</tbody>
</table>

Table 2
Male and Female Employee Respondents*

<table>
<thead>
<tr>
<th>Sex</th>
<th>DE Employees</th>
<th>Co-Worker Employees</th>
<th>Combined Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>34.1</td>
<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>65.9</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>100.0</td>
<td>44</td>
</tr>
</tbody>
</table>

* Two pairs of employees were mixed (male/female). Forty-two pairs were of the same sex.
Eight-eight percent of the co-workers were between the ages of 18 and 26 years. The age range for the employees with a distributive education background was 18 to 20 years. The modal age of the two employee groups was 19 years old.

Both groups of employees were high school graduates. Some individuals had received additional education or training, but not more than one year beyond the high school diploma. The two groups reported approximately equivalent experience, that is, matched pairs had either 0-3 years on the same job or over 3 years. All employees had the same employer or supervisor. All pairs had the same job within the same company, store, and location, and worked the same shift under identical company policies. Fifty-five percent of the co-workers graduated from high school in the same year as the DE employees.

These data tend to indicate a high degree of similarity between employees (DE and co-worker) on job characteristics of importance to this study. Most employees were in distributive occupations. Examples of types of jobs held include the following:

Retail: sales person, warehouse person, display person
Insurance: salesperson, claims adjuster
Bank: teller
Restaurant: salesperson, hostess
Motel/Hotel: front office person
Food Service: cashier checker, trainee, grocery person
Finance/Credit: trainee
Television: salesperson
Results of Hypothesis Testing

Job Attitudes

Job Satisfaction

In Hypothesis 1.1.1 it was predicted that employed cooperative distributive education graduates would show higher intrinsic than extrinsic job satisfaction.

The two subscales of the Minnesota Satisfaction Questionnaire, intrinsic and extrinsic satisfaction, are not directly comparable because they contain 12 and 6 items respectively. Because of this incomparability, whenever comparisons were made between these two sub-scales, a linear transformation of the subscale scores was necessary. The transformation used was a simple division of the subscale score (for each individual) by the number of items in the subscale. Thus, in the case of intrinsic satisfaction, the subscale score for each individual was divided by 12, and in the case of extrinsic satisfaction, the subscale score for each individual was divided by 6 prior to direct statistical comparisons of these two subscales.
Table 3

Test of Hypothesis 1.1.1

Paired \( t \)-test Between

Intrinsic and Extrinsic Job Satisfaction of DE Employees

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Cases</th>
<th>Adjusted Mean</th>
<th>Standard Deviation</th>
<th>* (Difference) Mean</th>
<th>* Standard Deviation</th>
<th>Significance (1-( \alpha ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic</td>
<td>44</td>
<td>3.75</td>
<td>0.59</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic</td>
<td>44</td>
<td>3.22</td>
<td>0.97</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

1 Adjusted intrinsic score minus adjusted extrinsic score determined the difference used in computation of the \( t \) value.

2 Correlation 0.720.

Employed cooperative distributive education graduates appear to have a higher sense of self-esteem, pride and accomplishment in relation to the job. Their scores on intrinsic job satisfaction were higher than their scores on extrinsic job satisfaction.

Hypotheses 1.1.2, 1.1.3 and 1.1.4 imply paired comparisons between the two employee groups (DE; Co-worker). Table 4 presents the results of the paired \( t \)-tests for each hypothesis.
Table 4
Hypotheses 1.1.2, 1.1.3 and 1.1.4
Paired t-tests of Job Satisfaction
Between DE and Co-Worker Employee Means

<table>
<thead>
<tr>
<th>Job Satisfaction Component</th>
<th>Group</th>
<th>Means</th>
<th>(Difference)</th>
<th>Standard Deviation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Co-Worker</td>
<td>Worker</td>
<td>DE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic</td>
<td>44</td>
<td>19.41</td>
<td>19.34</td>
<td>*0.07</td>
<td>6.09</td>
</tr>
<tr>
<td>Intrinsic</td>
<td>44</td>
<td>43.16</td>
<td>45.11</td>
<td>*-1.95</td>
<td>8.93</td>
</tr>
<tr>
<td>General</td>
<td>44</td>
<td>70.22</td>
<td>72.16</td>
<td>*-1.94</td>
<td>14.99</td>
</tr>
</tbody>
</table>

1 Differences determined by subtracting DE raw score from co-worker raw score for each subject pair.

2 Correlation: Extrinsic 0.355; Intrinsic 0.065; General 0.217.

Hypothesis 1.1.2 predicted no significant difference between the two employee groups on extrinsic job satisfaction. The test failed to reject this hypothesis of no difference.

Hypothesis 1.1.3 predicted that employed cooperative distributive education graduates would express a stronger intrinsic job satisfaction than their co-workers. The test failed to reject the hypothesis of no difference and this hypothesis was not supported. The difference is significant at the .08 probability level. This does not meet this
study's .05 alpha level, but is nevertheless, of interest.

Hypothesis 1.1.4 predicted no significant difference on general job satisfaction scores (intrinsic and extrinsic satisfaction) between DE trained employees and co-workers. The hypothesis of no difference between the two employee groups could not be rejected on the basis of these results.

Job Involvement

Hypothesis 1.2 predicted that employed DE graduates would express higher job involvement than their paired co-workers. A paired \( t \)-test on differences of the means between the two groups did not lead to rejection of the hypothesis of no difference. Table 5 summarizes the test data.

### Table 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cases</th>
<th>Co-Worker</th>
<th>DE</th>
<th>(Difference)</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>*</th>
<th>t</th>
<th>( df ) (1-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Involvement</td>
<td>44</td>
<td>16.18</td>
<td>15.57</td>
<td>* 0.61</td>
<td>3.64</td>
<td>0.55</td>
<td>1.12</td>
<td>43</td>
<td>(n.s.)</td>
<td></td>
</tr>
</tbody>
</table>

1 Differences determined by subtracting DE raw score from co-worker raw score for each subject pair.

2 Correlation 0.214.
Beliefs About Work

Hypothesis 1.3.1 hypothesized that DE employees would express a stronger work ethic than their co-workers. Table 6 presents a summary of the results.

Table 6
Hypothesis 1.3.1
Paired t-test of Work Ethic Belief About Work
Between DE and Co-Worker Employee Means

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cases</th>
<th>Co-Worker</th>
<th>DE</th>
<th>(Difference)</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>t</th>
<th>df (1-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Ethic</td>
<td>44</td>
<td>19.80</td>
<td>20.41</td>
<td>-0.61</td>
<td>6.08</td>
<td>0.91</td>
<td>*-0.67</td>
<td>43 (n.s.)</td>
</tr>
</tbody>
</table>

1 Differences determined by subtracting DE raw score from co-worker raw score for each subject pair.

2 Correlation 0.034.

Results indicated that the hypothesis regarding the work ethic belief about work was not supported. The negative mean difference does indicate, however, that the DE employees exhibited a slightly stronger work ethic than co-workers.

Hypothesis 1.3.2 indicates that no differences were expected between the three sampled groups on each of the Beliefs About Work scales. The three groups were compared through the use of dummy coding in a regression
analysis in an attempt to identify which of the groups would account for the most variance within each subscale. Five separate regression analyses of the data were run, one for each subscale. "Dummy coding can be used whenever one is dealing with several groups. The overall F ratio for the $R^2$ is interpreted to determine whether some or all of the means of the groups differ significantly. In order to determine which group means are significantly different, it is necessary to apply one of the common methods for multiple comparisons between group means" (Kerlinger and Pedhazur, 1973, p. 121). To test the group means this researcher used a method developed by Tukey, called the "Honest-Significant-Difference" (HSD) method (Kennedy, 1977, pp. 5.36-5.40). Tables 7-11 present the results of the regression analysis for each subscale. For each analysis, the independent variable is "job team" and the dependent variable is one of the five Beliefs About Work scales. "Job team" relates to the three employees as a working unit on a job. Each of the three employees brings to that job a belief about work. The DE trained employee received specialized training in the American free enterprise system. The co-worker has developed a belief about work through high school education and other inputs. The companies' employers/supervisors have received their beliefs about work from the company employing them and other outside inputs (e.g. past experience). Dummy coding was used in separating the three groups on each of the five Beliefs About Work scales.
Table 7
Hypothesis 1.3.2
Summary of Regression Analysis of Variance
for Belief About Work: Humanistic

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sums of Squares</th>
<th>Mean Squares</th>
<th>F ratio</th>
<th>Significance Level (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>76.910</td>
<td>38.455</td>
<td>1.142</td>
<td>(n.s.)</td>
</tr>
<tr>
<td>Residual</td>
<td>129</td>
<td>4343.934</td>
<td>33.674</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td>4420.844</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results show no significant difference between the three groups on this variable. The group means were: 43.30 for DE employees, 41.45 for co-workers, and 42.66 for employers.

Table 8
Hypothesis 1.3.2
Summary of Regression Analysis of Variance
For Belief About Work: Marxist

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sums of Squares</th>
<th>Mean Squares</th>
<th>F ratio</th>
<th>Significance Level (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>305.836</td>
<td>152.918</td>
<td>8.409</td>
<td>.001</td>
</tr>
<tr>
<td>Residual</td>
<td>129</td>
<td>2345.791</td>
<td>18.184</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td>2651.627</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 8 shows that a significant difference exists between one or more pairs of the group means. The group means were 33.91 for the DE employees, 33.77 for co-workers, and 30.61 for employers. A post hoc comparison using the Tukey method showed that the employer group is not as committed to a Marxist work belief as the two employee groups. The other comparison pair (DE and co-worker) were not significantly different at the .05 alpha level. Appendix L presents the computations.

Table 9
Hypothesis 1.3.2
Summary of Regression Analysis of Variance For Belief About Work: Organizational

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sums of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Significant Value (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>147.865</td>
<td>73.932</td>
<td>3.305</td>
<td>0.03</td>
</tr>
<tr>
<td>Residual</td>
<td>129</td>
<td>2885.784</td>
<td>22.370</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td>3033.649</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results in Table 9 show that a significant difference exists between one or more pairs of the group means. The group means were 31.72 for the DE employees, 29.59 for co-workers, and 29.39 for employers. A post hoc comparison using the Tukey method showed there was no significant difference between the DE employee group mean, the employer group mean, and the co-worker group mean at the .05 alpha level. Appendix L presents the computations.
Table 10

Hypothesis 1.3.2

Summary of Regression Analysis of
Variance for Belief About Work: Leisure

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sums of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Significance Level (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>61.157</td>
<td>30.578</td>
<td>2.340</td>
<td>0.10 (n.s.)</td>
</tr>
<tr>
<td>Residual</td>
<td>129</td>
<td>1685.750</td>
<td>13.068</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td>1746.907</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results show no significant difference between the means of the three groups on this variable. The group means were 23.36 for the DE employees, 23.29 for co-workers, and 21.89 for employers.
Table 11
Hypothesis 1.3.2
Summary of Regression Analysis
of Variance For Beliefs
About Work: Work Ethic

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sums of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Significance Level (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>85.689</td>
<td>42.844</td>
<td>2.106</td>
<td>0.12 (n.s.)</td>
</tr>
<tr>
<td>Residual</td>
<td>129</td>
<td>2624.759</td>
<td>20.347</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td>2710.448</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results show no significant difference between the three group means on this variable. The group means were 20.41 for the DE employees, 19.80 for co-workers, and 18.48 for employers.

**Job Performance**

Cooperative distributive education training is concerned with the job performance of graduates as it relates to employers' job goal expectations. Hypothesis 2 anticipated that employed cooperative distributive education graduates would be rated higher on job performance criteria by their employer than would their co-workers. A series of paired t-tests were performed to investigate this hypothesis. Table 12 presents the results of these paired t-tests.
Table 12

Hypothesis 2

Paired \( t \)-tests Between DE employees and Co-Workers

Separate and Overall Job Performance Criteria

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Group</th>
<th>Mean</th>
<th>(Difference)</th>
<th>Standard Deviation</th>
<th>Standard Error*</th>
<th>Significance (1-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Co-Worker</td>
<td>DE</td>
<td>Means*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of Work</td>
<td>25.11</td>
<td>25.05</td>
<td>* 0.06</td>
<td>8.78</td>
<td>1.324</td>
<td>* 0.05 (n.s.)</td>
</tr>
<tr>
<td>Quality of Work</td>
<td>23.32</td>
<td>24.09</td>
<td>*-0.77</td>
<td>7.53</td>
<td>1.136</td>
<td>*-0.68 (n.s.)</td>
</tr>
<tr>
<td>Job Knowledge</td>
<td>17.98</td>
<td>20.75</td>
<td>*-2.77</td>
<td>6.02</td>
<td>0.908</td>
<td>*-3.05 0.002</td>
</tr>
<tr>
<td>Initiative</td>
<td>21.32</td>
<td>21.68</td>
<td>*-0.36</td>
<td>8.94</td>
<td>1.348</td>
<td>*-0.27 (n.s.)</td>
</tr>
<tr>
<td>Interpersonal Relationships</td>
<td>18.50</td>
<td>21.55</td>
<td>*-3.04</td>
<td>9.29</td>
<td>1.401</td>
<td>*-2.17 0.018</td>
</tr>
<tr>
<td>Dependability</td>
<td>18.70</td>
<td>19.20</td>
<td>*-0.50</td>
<td>8.60</td>
<td>1.297</td>
<td>*-0.39 (n.s.)</td>
</tr>
<tr>
<td>Potential</td>
<td>17.36</td>
<td>19.86</td>
<td>*-2.50</td>
<td>8.03</td>
<td>1.211</td>
<td>*-2.06 0.023</td>
</tr>
<tr>
<td>Overall Job Performance</td>
<td>142.30</td>
<td>152.18</td>
<td>*-9.88</td>
<td>43.69</td>
<td>6.587</td>
<td>*-1.50 (n.s.)</td>
</tr>
</tbody>
</table>

1  \( n = 44; \text{ df } = 43 \).

2  Differences determined by subtracting DE raw score from co-worker raw score for each subject pair.

3  Correlations in order from top down: 0.304, 0.254, 0.584, 0.332, 0.353, 0.269, 0.306, and 0.433.
The tests indicate that differences favoring the DE employee group (as rated by the employer) exist for three job performance criteria. These are job knowledge, interpersonal relationships, and potential.

Perceptions of Prior Education

Hypothesis 3.1 indicates an expectation that DE employees would rate their vocational DE training higher than the co-workers would rate their general high school training on personal and technical skills. Paired $t$-tests were performed for each skill area to determine whether judgmental differences related to the current job situation exist between the two groups (Table 13).

<table>
<thead>
<tr>
<th>Skill Variable</th>
<th>Number of Cases</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error $^2$</th>
<th>df</th>
<th>t</th>
<th>Significance (1-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>44</td>
<td>3.65</td>
<td>7.18</td>
<td>1.08</td>
<td>43</td>
<td>3.38</td>
<td>.001</td>
</tr>
<tr>
<td>Technical</td>
<td>44</td>
<td>4.00</td>
<td>6.04</td>
<td>0.91</td>
<td>43</td>
<td>4.39</td>
<td>.001</td>
</tr>
</tbody>
</table>

1 Differences determined by subtracting DE raw score from co-worker raw score for each subject pair.

2 Correlation: Personal Skills - 0.230; Technical Skills 0.111.
The mean differences suggest that co-worker scores are higher than the DE employees' scores. The higher the score, the lower the employee rates his or her prior education as it contributes to the current job. The hypothesis of no difference was rejected, thus lending support to Hypothesis 3.1. Descriptive data for the two groups are presented in Table 14.

Table 14
Hypothesis 3.1
Descriptive Data:
Perceptions of Prior Education for Personal and Technical Skills

<table>
<thead>
<tr>
<th>Skill Variable</th>
<th>Group</th>
<th>Number of Cases</th>
<th>Group Means</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>DE</td>
<td>44</td>
<td>16.909</td>
<td>3.672</td>
<td>0.553</td>
</tr>
<tr>
<td></td>
<td>Co-Worker</td>
<td>44</td>
<td>20.568</td>
<td>5.389</td>
<td>0.812</td>
</tr>
<tr>
<td>Technical</td>
<td>DE</td>
<td>44</td>
<td>20.272</td>
<td>4.622</td>
<td>0.697</td>
</tr>
<tr>
<td></td>
<td>Co-Worker</td>
<td>44</td>
<td>24.272</td>
<td>4.437</td>
<td>0.669</td>
</tr>
</tbody>
</table>

1 Higher scores indicate lower ratings.

Distributive education graduate employees appear to feel that their vocational education training in personal and technical skills is applicable to the current job, whereas their co-workers have a lower opinion concerning their preparation in these two areas. Appendix M presents the individual items for each area showing the response level,
frequency, and percent of each group responding to the items. On the
majority of the items, DE employees rated their training higher than did
coworkers.

Hypothesis 3.2 proposes that employers and supervisors would rate DE
employees significantly higher in personal and technical skill areas
than coworkers' as this education relates to current job requirements.
Table 15 presents the results of paired t-tests performed on the employers'
ratings of total personal and technical skills for each employee group.

Table 15
Hypothesis 3.2
Paired t-tests of Perceptions of Prior Education
Employers' Ratings on DE Employee and Co-Worker

<table>
<thead>
<tr>
<th>Skill Variable</th>
<th>Number of Cases</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>df</th>
<th>t</th>
<th>Significance (1-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>44</td>
<td>1.272</td>
<td>7.54</td>
<td>1.137</td>
<td>43</td>
<td>1.12</td>
<td>n.s.</td>
</tr>
<tr>
<td>Technical</td>
<td>44</td>
<td>1.977</td>
<td>5.27</td>
<td>0.795</td>
<td>43</td>
<td>2.49</td>
<td>0.008</td>
</tr>
</tbody>
</table>

1 Differences determined by subtracting DE raw score from co-worker raw
score for each subject pair.

2 Correlations: Personal Skills 0.203; Technical 0.415.

Mean differences suggest that co-worker scores are higher than the
DE employees' scores. The higher the score, the lower the employer rated
the employees on prior education as it affects the current job. The hypothesis of no difference was not rejected for overall technical skills. Descriptive data for the two groups are presented in Table 16.

Table 16

Hypothesis 3.2
Descriptive Data: Perceptions of Prior Education
Employers' Ratings of DE Employees and Co-Workers

<table>
<thead>
<tr>
<th>Skill Variable</th>
<th>Group</th>
<th>Number of Cases</th>
<th>Group Means</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>DE</td>
<td>44</td>
<td>19.363</td>
<td>5.81</td>
<td>0.877</td>
</tr>
<tr>
<td></td>
<td>Co-Worker</td>
<td>44</td>
<td>20.634</td>
<td>6.11</td>
<td>0.923</td>
</tr>
<tr>
<td>Technical</td>
<td>DE</td>
<td>44</td>
<td>24.454</td>
<td>4.85</td>
<td>0.732</td>
</tr>
<tr>
<td></td>
<td>Co-Worker</td>
<td>44</td>
<td>26.431</td>
<td>4.90</td>
<td>0.739</td>
</tr>
</tbody>
</table>

1 Higher scores indicate lower ratings.

Results indicate that employers tended to favor the DE employee on
There was no significant difference between ratings on overall personal skills. Appendix M also presents the response level, frequency, and percent of total responses for individual items within each skill area as reported by the employers.

Hypothesis 3.3 proposed that DE employees would rate themselves higher on overall personal and technical skills than would their employers. Table 17 presents the results of the directional paired t-test of the two groups used to determine if there is a significant difference in the ratings.

Table 17
Hypothesis 3.3
Paired t-test of Perceptions of Prior Education
Between Employers' and DE Employees

<table>
<thead>
<tr>
<th>Skill Variable</th>
<th>Number of Cases</th>
<th>Mean¹</th>
<th>Standard Deviation</th>
<th>Standard Error²</th>
<th>df</th>
<th>t</th>
<th>Significance (1-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>44</td>
<td>-2.45</td>
<td>6.80</td>
<td>1.02</td>
<td>43</td>
<td>-2.39</td>
<td>0.01</td>
</tr>
<tr>
<td>Technical</td>
<td>44</td>
<td>-4.18</td>
<td>6.55</td>
<td>0.98</td>
<td>43</td>
<td>-4.23</td>
<td>0.01</td>
</tr>
</tbody>
</table>

¹ Differences determined by subtracting Employers' raw score from DE employees' raw score for each subject pair.

² Correlations: Personal 0.024; Technical 0.045.
The tests' mean differences suggest that overall differences in scores are such that employer scores are higher than the DE employees' scores. The hypothesis of no difference was rejected thus lending support to Hypothesis 3.3. Descriptive data for the two groups are presented in Table 18.

Table 18
Hypothesis 3.3
Descriptive Data: Perceptions of Prior Education
Employer Ratings and DE Employee Ratings

<table>
<thead>
<tr>
<th>Skill Variable</th>
<th>Group</th>
<th>Number of Cases</th>
<th>Group Means</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DE</td>
<td>44</td>
<td>16.909</td>
<td>3.672</td>
<td>0.553</td>
</tr>
<tr>
<td></td>
<td>Employer</td>
<td>44</td>
<td>19.363</td>
<td>5.810</td>
<td>0.877</td>
</tr>
<tr>
<td>Technical</td>
<td>DE</td>
<td>44</td>
<td>20.272</td>
<td>4.622</td>
<td>0.697</td>
</tr>
<tr>
<td></td>
<td>Employer</td>
<td>44</td>
<td>24.454</td>
<td>4.858</td>
<td>0.732</td>
</tr>
</tbody>
</table>

1 Higher scores indicate lower ratings.

Employers' ratings of the DE employee group were significantly lower (higher scores) than the self-ratings by DE employees on both personal and technical skills (Appendix M).

Need to Achieve Motivation

Hypothesis 4 proposed that DE employees could be expected to have significantly higher levels of achievement motivation due to their high
school DE training than would co-workers without such training.

Table 19 presents the results of the paired t-test performed to detect whether or not there were any differences in need to achieve motivation between the two groups.

Table 19

Hypothesis 4

Paired t-tests of Overall Need to Achieve Motivation

Between DE Employees' and Co-Workers'

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Number of Cases</th>
<th>Group Means</th>
<th>(Difference)</th>
<th>Standard Error</th>
<th>t</th>
<th>df (1-tail)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need to Achieve</td>
<td>DE</td>
<td>44</td>
<td>5.45</td>
<td>*</td>
<td>-0.0455</td>
<td>1.904</td>
<td>0.287</td>
<td>*-0.06</td>
</tr>
<tr>
<td></td>
<td>Co-Worker</td>
<td>44</td>
<td>5.40</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>(n.s.)</td>
<td></td>
</tr>
</tbody>
</table>

1 Differences determined by subtracting DE raw score from co-worker raw score for each subject pair.

2 Correlation 0.160.

The hypothesis of no difference on overall need to achieve motivation could not be rejected.

Summary

The DE graduates, viewed from the perspective of the criteria selected and analyzed in this study, have some scores significantly higher than
the paired co-workers relative to the current job situation.

They have high personal intrinsic job satisfaction, and along with their co-workers show a stronger tendency towards a Marxist belief about work when compared with their employer. DE employees are also rated higher by employers and supervisors on job knowledge, interpersonal relationships, and job potential than their paired co-workers.

DE employees rated their prior DE high school training significantly higher than co-workers rated their general education as it affects the current job. Further, the employers' ratings of both employee groups favored the DE employee on overall technical skills.

The findings from the DE graduates show they have scores on many of the factors used in this study that indicate similar job attitudes or performance ratings as their paired co-workers. Intrinsic, extrinsic and general job satisfaction scores are similar between the two employee groups. Also, job involvement scores were similar for DE employees as compared to co-workers. Finally, the work ethic scores were similar between the two employee groups.

Job performance ratings from employers or supervisors on quantity of work, quality of work, initiative and dependability, and overall job performance were not significantly better for DE employees than co-workers.

Employers did not score the DE employees significantly higher in personal job skills than co-workers. In addition DE employees have rated their prior DE training significantly higher than their employers.

The DE employees did not score any better on achievement motivation than their paired co-workers.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The final chapter of this study includes: (1) a summary of the problem investigated, the research methodology, and the major findings; (2) conclusions based upon the findings; and (3) recommendations.

Summary

The problem under investigation involved whether employed distributive education graduates and nongraduate DE co-workers differed in job attitudes, job performance skills, and perceptions of prior education. The two groups were distinguished by their type of high school education (vocational DE vs. general/academic). The study's purpose was to appraise the effect of high school cooperative distributive education programs on employed graduates, using selected factors related to job attitudes, job performance, and perceptions of prior education. Employers were asked to rate the job matched employees on job performance and their prior high school education in relation to the current job.

Surveys were used to collect the data from the employers and the job-paired employees. Those sampled were matched in terms of jobs, job classification, employing firm, and length of service. Employees were also paired with their employer as a means of aggregating data for analysis.

The required number of respondents for this study were fifty-six Type 20 program cooperative DE 1978 graduates who were full-time employees in Columbus, Ohio, their paired co-workers (56), and the employers or
supervisors of the paired employees. A two-stage cluster sampling technique was designed to identify eight Columbus, Ohio, Type 20 programs and seven DE employees from within each program cluster. The total number of Columbus, Ohio Type 20 programs in 1978 was 14. From these 14 Type 20 programs, 240 graduates were reported to the Columbus, Ohio, Public School system as being full-time employees on January 31, 1979. Random selection of programs and graduates was attempted, but complete randomization of programs and DE subjects was not possible. The two-stage cluster sampling technique, therefore, was abandoned. Forty-four suitable completed sets were obtained from 132 job-matched individuals. The surveys were given to each group. The sampling period extended from July, 1979, to November 1979. This met the study's requirement to investigate the DE employee sample one year after the June 1978, graduation date.

**Major Findings on Selected Criteria**

Three criteria and their subfactors were investigated: job attitudes, job performance, and perceptions of prior education.

**Job Attitudes.** Paired employee comparisons within these criteria were compiled to determine which factors were associated with individuals' type of high school education, as this education affects their current job activities.

Intrinsic, extrinsic, and general job satisfaction were among the job attitude factors measured. An analysis of the DE and the co-worker on the three job satisfaction factors showed that there were no statistically significant differences between the two groups. The mean score for DE employees, however, was higher for intrinsic and general job
satisfaction than the mean score for the co-workers.

The DE graduates have a statistically significant intrinsic job satisfaction score when compared with their extrinsic job satisfaction score.

The test for job involvement showed no significant difference between the two groups. The DE employee group did not have a higher mean score than the co-worker.

All three groups were measured on each of the five beliefs about work scales. The two scales showing the greatest variance between the three groups were organizational and Marxist beliefs about work. Both employee groups seemed to have stronger Marxist work beliefs than employers/supervisors. The organizational belief about work scale, while showing a significant F ratio, did not turn up a significant group difference through the Tukey mean-comparison test at the .05 alpha level of confidence. The other three beliefs about work, including leisure, humanistic, and work ethic showed no significant difference among the three groups.

**Job Performance**

Paired comparisons using the employer's ratings on each employee group were made to determine which factors relative to the individuals' type of high school education, as this education affects current job performance skills, were different between the employee groups. The findings showed that employers rated DE employees significantly higher on job knowledge, interpersonal relations, and potential. The DE employees were given higher mean score ratings, albeit not statistically higher, by employers on quality of work, initiative, dependability, and overall job performance.
Perceptions of Prior Education. Paired comparisons using all three groups were made in order to determine how personal and technical skills learned through high school training differed between the groups. The findings showed that employers rated the DE employees higher than their co-workers on technical skills. Employers gave both employee groups equivalent ratings on personal skills acquired through their previous high school education. The DE graduates indicated that their training had benefited them on the job. Co-workers were not as favorable toward their prior education as were DE employees. Employers rated DE employees considerably lower on prior training than the DE graduates rated themselves.

Achievement motivation. The results of paired comparisons between the DE employees and co-workers on need to achieve motivation showed no statistical significant difference between the two groups.

Conclusions

Based upon the findings of this study the following conclusions were made:

1. The job satisfaction of paired cooperative distributive education graduate employees and nongraduate DE co-workers is similar when measured in terms of intrinsic, extrinsic, and general job satisfaction. The evidence obtained in the findings for hypotheses 1.1.2, 1.1.3 and 1.1.4 indicates that even though DE employees received specialized training, their level of job satisfaction was similar to that of co-workers who had not received this high school training.

The DE employee group indicated significantly higher intrinsic than extrinsic job satisfaction. This higher DE intrinsic job satisfaction was also evidence by the DE employees, though not statistically
significantly so, when a paired comparison was made with their co-workers. Analysis of data relative to hypotheses 1.1.1 and 1.1.3 demonstrate that cooperative distributive education training contributes to the intrinsic job satisfaction of graduate employees.

2. The job involvement of paired cooperative distributive education graduate employees and nongraduate DE co-workers is similar when measured in terms of the current job. Billings (1979) expressed the idea that vocational education programs encourage job involvement by showing the job to be important. The evidence obtained in the findings for hypothesis 1.2 indicates that cooperative distributive training, at least in this case, did not produce graduates who express a strong sense of identification with their chosen occupation.

3. The work ethic of paired cooperative distributive education graduate employees and nongraduate DE co-workers is similar when measured in terms of an individual's own values. Crawford (1967) stated that a distributive education program should engender an understanding and appreciation of work and the free enterprise system as a cornerstone of democracy. The evidence obtained in the findings for hypothesis 1.3.1 indicates that cooperative distributive training did not affect the graduate's belief about work as being good in itself and bestowing dignity on a person.

A comparison of all five beliefs about work scales between the three organizational groups of employees making up a "job team" (DE employee, co-worker, supervisor) produced mixed results. Four work beliefs were similar for each of the three groups: leisure, work ethic, humanistic, and organizational, Marxist-related beliefs for each of the two employee groups were significantly different from those of the middle management
supervisor group. This supports Buchholz's national study's findings on this belief system.

Billings presents the argument that an important result of vocational instruction may be a change in the individual's underlying beliefs about work in general and the part work should play in life. The results obtained in the findings for hypothesis 1.3.2 indicate that cooperative distributive training did not influence underlying beliefs about work. This study's Marxist-tendency findings, so common among entry level workers, highlights the importance of the needed emphasis on free enterprise and the dignity of work which vocational DE instruction addresses.

4. Vocational training is based on the assumption that the instruction an individual receives may increase job performance by altering performance goals. The evidence obtained in the findings for hypothesis 2 indicate that cooperative distributive training brought the performance of program graduates significantly in line with their employers or supervisors on three criteria: job knowledge, interpersonal relationships, and potential. Overall job performance, however, showed no significant difference between the two employee groups. Mean scores on the performance criteria listed on the Employee Performance Appraisal rating form suggest that the Type 20 DE program helped to prepare DE employees for entry level job performance activities.

5. The scores on the Perceptions of Prior Education rating form from the three groups suggest that Type 20 DE program training is more relevant for obtaining job skills than general high school education programs. The evidence obtained in the analysis of hypothesis 3.1 indicates that co-workers have a significantly lower opinion of this prior education (as this education affects the current job). Hypothesis
3.2 indicates that employers rated highly the technical skills obtained through Type 20 DE programs. Personal skills ratings by employers showed no statistically significant difference between the two employee groups. Employer judgments about DE employees' prior education were significantly lower than the corresponding DE employees' judgments. The evidence obtained in the analysis of hypothesis 3.3 indicates that employers do not share the same perceptions of skills acquired as do DE graduate employees.

6. The achievement motivation of paired cooperative distributive education graduate employees and nongraduate DE co-workers is similar when measured in terms of individual desire to achieve on the job.

In conclusion, although there were no significant differences between cooperative distributive education graduates and nongraduate DE co-workers in relation to all the factors of job attitudes and the overall employer job performance ratings, there do appear to be certain subfactor variables of significance for the DE graduate employee which affect the current job.

Recommendations for Further Research

Research generates many questions along with many answers. The following recommendations for further research are made based upon the findings of this study and the investigator's experience in conducting it.

1. A similar study should be conducted in a much larger geographic area including a larger population.

2. A comparison similar to this study should be conducted using a stratified random sampling technique to provide a homogeneous population on such variables as type of occupation and type of specialized DE job.
3. Research should be conducted on the relationship between vocational distributive education and job satisfaction, job performance, beliefs about work, job involvement and job motivation. Currently there seems to exist a void of empirical evidence in distributive education research on these types of relationships. Investigations of this type would materially assist in examining the hypothesis of no discernable effects of vocational distributive education on these variables.

4. A research study should be conducted that would identify the dimensions of performance which are important for a given distributive job. This would allow specific job performance dimensions to be developed for use as criteria to measure differences between DE groups and non-graduate DE groups or others.

5. A research study should be conducted that would identify various types of job performance motivation in which a DE graduate needs to excel. The need to achieve motivation is a learned motivation; therefore, if other motivations could be identified as learned motivation, a learning process could be established to enhance the DE program offerings and influences upon the graduates' total job effort.
BIBLIOGRAPHY


Dixon, W. J. Biomedical computer programs (BMD). University of California, California, 1975.


Garbin, A.P., Jackson, D.P., & Campbell, R. E. Worker adjustment: youth in transition from school to work. Columbus, Oh: The Ohio State University, Center for Vocational and Technical Education, 1967.


Reliability Measures, item-analysis program, PROGLIB, Member: REL, Entry: MAIN. Columbus, Ohio: The Center for Measurement and Evaluation of The Ohio State University, 02/10/76.


APPENDIX A

COMPLETE SURVEY AND INSTRUMENTS
USED IN BOTH THE PILOT STUDY AND
IN COLUMBUS, OHIO
DE AND CO-WORKER
SURVEY

JOB ATTITUDES, AND PERCEPTIONS

Ervin A. Emery, Jr.
The Ohio State University
Dear Distributive Education Graduate:

Cooperative distributive education is continually trying to improve the program. This concern for improvement centers on the individual's satisfaction with both prior education for employment and the current employment situation. The question asked is, "How well have you been trained and prepared for employment?" To answer this question I need your voluntary help in this study. You are being asked to respond to your perceptions of prior high school education training and how this has helped you in your current job. You are being asked to give your attitudes towards the job and working conditions. Your employer/supervisor will also rate you on job performance along with his perceptions of your prior high school education. Your paired co-worker will participate likewise.

Enclosed is a short questionnaire in addition to several short attitude survey forms. This packet of material is coded for my purposes of follow-up only. Your opinions will be held in strict confidence and will never be identified with you personally. I am interested only in statistical relationships and will not report responses on an individual basis.

General instructions as well as specific directions are included. It will only take a small amount of time to complete the questionnaire. Please complete and return in the self-addressed envelope as soon as possible.

Thank you for your contribution to Distributive Education.

Sincerely,

Ervin A. Emery Jr.
2300 Swansea Road
Columbus, Oh 43221

Enclosures

Note: Both the DE SURVEY and the co-workers were the same except the cover letters.
Dear Distributive Education Co-Worker:

Cooperative distributive education is continually trying to improve the program. This concern for improvement centers on the individual's satisfaction with both prior high school education for employment and the current employment situation. The question asked is, "How well have you been trained and prepared for employment?" To answer this question I need your voluntary help in this study. You have been paired with a distributive education trained high school graduate and are being asked to respond, as is your DE co-worker, to your perceptions of prior high school education training and how this has helped you in your current job. You are being asked to give your attitudes towards the job and working conditions. Your employer/supervisor will also rate your on-job performance along with his perceptions of your prior high school education.

Enclosed is a short questionnaire in addition to several short attitude survey forms. This packet of material is coded for my purpose of follow-up only. Your opinions will be held in strict confidence and will never be identified with you personally. I am interested only in statistical relationships and will not report responses on an individual basis.

General instructions as well as specific directions are included. It will only take a small amount of time to complete the questionnaire. Please complete and return in the self-addressed envelope as soon as possible.

Thank you for your contribution to Distributive Education.

Sincerely,

Ervin A. Emery, Jr.
2300 Swansea Road
Columbus, OH 43221

Enclosures
BACKGROUND INFORMATION—EMPLOYEES

Instruction: Please check or fill in the items below. Your responses are confidential and voluntary.

Code Number

1. Check your course of study in high school.
   ( ) Academic ( ) General ( ) Distributive Education


5. Name of school graduated from__________________ City________

6. Year graduated from high school______________

7. Name of DE teacher (if applicable)________________________

8. Is the DE teacher still at your high school? Yes ___ No ___

9. Title of present job (salesperson, cashier, stock person, etc.)

10. Name of firm where employed______________________________

   Street________________________ City________ Phone No._

11. Name of your present job supervisor________________________

12. Number of years working on present job - 0 to 3 years ( )
    3 or more ( )

NEXT:

The next part of the survey concerns YOUR perceptions of your prior education as this education relates to your current job. Go on now to "Perceptions of Prior Education - Employee." Be honest with yourself.
Perceptions of Prior Education

(Residents) Code Number __________

Your responses to this survey are confidential. Please react to each question or statement.

1. Please rate the training received from your prior high school education in the following personal skill areas. Please respond only to those areas you feel are appropriate.

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<th></th>
<th>Very Good</th>
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Accepting Responsibility
Punctuality
Personal Initiative
Willingness to Learn
Co-Worker Cooperation
Management Cooperation
Work Attitude
Work Attendance
Personal Appearance
Compliance with Business Policies
2. Please rate the training received from your prior high school education in the following technical skill areas. Please respond only to those areas you feel are applicable to the current occupational (job) area.

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<th>Skill Area</th>
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</table>
The next part of the survey is to identify your need to achieve on the job. Do not consider the job, but rather think of YOURSELF.

Instructions: Check either "yes" or "no" to each question. Please be sure to answer each question and decide one way or another, even if it is a hard decision to make.

1. Do you find it easy to relax completely when you are on a holiday? Yes ( ) No ( )
2. Do you feel annoyed when people are not punctual for appointments? Yes ( ) No ( )
3. Do you dislike seeing things wasted? Yes ( ) No ( )
4. Do you like getting drunk? Yes ( ) No ( )
5. Do you find it easy to forget about your work outside normal working hours? Yes ( ) No ( )
6. Would you prefer to work with a congenial, but incompetent partner, rather than with a difficult, but highly competent one? Yes ( ) No ( )
7. Does inefficiency make you angry? Yes ( ) No ( )
8. Have you always worked hard in order to be among the best in your own line? Yes ( ) No ( )

The next part of the survey concerns your beliefs about work. This is important to know because your prior education has given you the "American Way." Be honest with yourself when considering your feelings to each statement.

Instructions for this section follows.
NOTE:

Due to copyright laws the Beliefs About Work instrument is not available for presentation. The reader is advised to contact the developer.
The next part of the survey concerns your job involvement. In other words, do you really put yourself into the job?

Instructions: Write a number in the blank for each statement based on this scale.

How much do you agree with the statement?

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<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Disagree</td>
<td>Disagree</td>
<td></td>
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</tbody>
</table>

1. The major satisfaction in my life comes from my job.
2. The most important things that happen to me involve my work.
3. I'm really a perfectionist about my work.
4. I live, eat, and breathe my job.
5. I am very much involved personally in my work.
6. Most things in life are more important than work.

The final part of the survey concerns your satisfaction with the job.

Read the instructions and fill in the back page.

Thank you.
NOTE:

Due to Copyright laws the Minnesota Satisfaction Questionnaire (MSW) - Short Form is not available for presentation. The reader is advised to contact the developers at the University of Minnesota for a copy of the instrument.
EMPLOYER
SURVEY

JOB ATTITUDES, PERCEPTIONS, PERFORMANCE

Ervin A. Emery, Jr.
The Ohio State University
I consent to participating in a study entitled "Contributing Effects Cooperative High School Distributive Education Training Makes on Graduates' Employment." Dr. Otto Santos and/or Ervin A. Emery, Jr. (Investigator/Project Director or his/her authorized representative) has explained the purpose of the study and procedures to be followed. Possible benefits of the study have been described as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me. The information obtained from me will remain confidential and anonymous unless I specifically agree otherwise.

Finally, I acknowledge that I have read and fully understand the consent form. I have signed it freely and voluntarily and understand a copy is available upon request.

You need not answer any questions that are objectionable.

Date: ___________________________ Signed: _____________________________ (Participant)

(Investigator/Project Director or Authorized Representative) (Person Authorized to Consent for Participant - If Required)

PA-027 (2-79) -- To be used only in connection with social and behavioral research for which an OSU Human Subject Review Committee has determined that the research poses no risk to participants.
Dear Employer/Supervisor:

Distributive education is continually trying to improve the cooperative program. This concern is in terms of the individual's effectiveness on the current job. The question asked is, "How well has the employee been trained and prepared for employment?" To answer this question, I need your voluntary help in this study. You are being asked to give a performance rating to paired employees - one high school distributive education trained, the other a high school graduate not trained through distributive education. Further, you are being asked to give your perceptions on the paired employees' prior high school education training, as it relates to the current job. Finally, your feelings about work are asked for. The paired employees will be giving their attitudes towards the job and working conditions as well as perceptions of their prior education.

The U.S. Congress, in the Educational Amendments of 1976, Titles I and II on Vocational Education, calls for obtaining such information as asked for above from employers. To date, only manpower studies have been conducted. This is a first attempt to synthesize a process to measure an employee's effectiveness and relate this data to a type of educational training program.

Enclosed is a short questionnaire in addition to paired job performance ratings, paired perceptions of prior high school education, and an attitude survey on your feelings about work. This packet of material is coded for my purpose of follow-up only. Your opinions will be held in strict confidence and will never be identified with you personally. I am interested only in statistical relationships and will not report responses on an individual basis. You are being asked to be candid in your responses; however, this is not an official company report on the employees and no official, beyond you, will have access to your opinions. This is a study to determine employee effectiveness.

General instructions as well as specific directions are included. It will only take a small amount of your time to complete the questionnaires. Please complete and return in the self-addressed envelope as soon as possible.

Thank you for your contribution to Distributive Education.

Sincerely,

Ervin A. Emery, Jr.
2300 Swansea Road
Columbus, Oh 43221

Enclosures
The next part of the survey concerns the performance of the employee. Approximately 10 minutes for each employee is required to fill out the form. Feel free to make "supplementary comments" to each of the 7 items. Go on to the "Employee Performance Appraisal." Make two evaluations—one for the DE student—one for the Non-DE student. There are adequate forms available for you in this section. Label each form to identify DE student and Non-DE student.
NOTE:

Due to Copyright laws the *Employee Performance Appraisal* is not available for presentation in this dissertation. The reader is advised to contact Dr. M. M. Bruce publisher, for information about this instrument.
The next part of the survey concerns the employee's prior education. Consider, as best you can, the type of prior high school education the employee has had. Ask yourself the question, "How does this education affect the current employee's job situation." Go on now to the next part. Remember, make two evaluations. In other words, repeat this process—one for the DE employee and one for the Non-DE employee. There are adequate forms available for you.

D.E. EMPLOYEE
Perceptions of Employees' Prior Education
(Employer Form)

Your responses to this survey are confidential. Please react to each question or statement. Make out one form for each employee (1 for DE; 1 for Non-DE employee)

1. Please rate the training received by the graduate in the following personal skill areas as you feel their prior education contributes to each area. Please respond only to those areas you feel are appropriate.

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<th>Personal Skill Area</th>
<th>Very Good 1</th>
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<td>j. Compliance with Policies</td>
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2. Please rate the training received by the graduate in the following technical skill areas as you feel their prior education contributed to each area. Please respond only to those areas you feel are applicable to the current occupational (job) area.

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<tr>
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Non-D.E. EMPLOYEE
Perceptions of Employees' Prior Education
(Employer Form)

Your responses to this survey are confidential. Please react to each question or statement. Make out one form for each employee (1 for DE; 1 for Non-DE employee)

1. Please rate the training received by the graduate in the following personal skill areas as you feel their prior education contributes to each area. Please respond only to those areas you feel are appropriate.

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</table>

NEXT:

The next part of the survey concerns your beliefs about work. This is important to know because distributive education teaches to the "Free Enterprise" concept about work. This belief, "Free Enterprise," is a traditional American Democratic approach to occupations. However, as times change so does society's beliefs. Distributive education needs to match its graduate employees with the industry chosen by the employee for industry's concepts about work. To make this match, the employees whom you are rating also will identify their beliefs about work.
NOTE:

Due to copyright laws the Beliefs About Work instrument is not available for presentation. The reader is advised to contact the developer.
APPENDIX B

DESCRIPTION OF INSTRUMENTS AND QUESTIONNAIRE USED IN BOTH PILOT STUDY AND COLUMBUS, OHIO
Description of Instruments and Questionnaire

A. Employee:

1. Minnesota Satisfaction Questionnaire (MSQ) Short Form, 1977

This instrument was chosen because it has been used with young adults 18 years and older with demonstrated reliability and validity in measuring job satisfaction within this age group. The limiting factor in the use of this instrument is the lack of normative data for a sample similar to that used in the present study.

The purpose of this instrument is to measure employees' satisfaction with their job. There are three subfactors measured by the MSQ-Short Form: (1) Intrinsic satisfaction, (2) Extrinsic satisfaction, and (3) General satisfaction. Twenty items make up the instrument. A Likert-type response scale is used for scoring. The intended population consists of employees in any setting. Five minutes is the required time to complete the questionnaire.

Published Test Data:

Reliability: For internal consistency Hoyt's reliability coefficient on each subfactor as follows: .86 for Intrinsic Satisfaction; .80 for Extrinsic Satisfaction, and .90 for General Satisfaction. Median reliability coefficients were .86 for Intrinsic Satisfaction, .80 for Extrinsic Satisfaction and .90 for General Satisfaction.

Test-retest correlation of General Satisfaction scale scores: Coefficients of .89 over a one-week period and .70 over a one-year interval.
Validity: Inferred from the long form. Also established by study of differences in occupational groups and studies of relationship between satisfaction and satisfactoriness as specified by Theory of Work Adjustment (Gray, in press, p. 119-120).

2. Achievement Motivation Questionnaire (Lynn)

The Lynn Achievement Motivation Questionnaire was selected to measure the two employee groups on need for achievement (n Ach) motivation. The Lynn Achievement Motivation Questionnaire is a non-projective measure which has been demonstrated to discriminate levels of achievement motivation among college students aged 19-23, junior naval officers aged 19-22, senior managers aged 25-60, average managers aged 25-60, entrepreneurs, and professors (Lynn). Although brief (8 items), the scale covers the central elements of McClelland's achievement motivation theory (See Chapter II, Achievement Motivation) by using items determined by factor analysis to have high loading on achievement motivation.

Concurrent validity [validity based upon correlation with a criterion variable that is measured at about the same time as the test is administered (Gray, 1976)]: Demonstrated by the correlation between McClelland's Thematic Apperception Test (TAT), n Ach test, and Lynn's instrument; with known high achievers on TAT scoring high on the Lynn questionnaire.

Reliability: Results generally supportive of the predictions of n Ach theory have been reported using Lynn's test from Britain, Afghanistan, Brazil, Saudi Arabia, Turkey, and Japan (Iwawaki and Lynn; Melikian et al). The instrument developer does not report reliability data.
To meet the objection of the association between achievement motivation and age using Lynn's questionnaire, the Person $r$ correlation was computed for the largest age range criterion group; managers, age span 25-60 years. The correlation obtained was $-0.007$, which is highly insignificant (Lynn, p. 531). Age and experience in employment are not factors which affect discrimination between high, medium, and low need for achievement individuals using Lynn's test (Lynn). Limitations of using the Lynn questionnaire result from the fact that the sample currently under investigation is not similar to those in any of Lynn's prior studies.

Reasons for selecting Lynn's questionnaire: The Thematic Apperception Test (TAT), which has been the prime means of measuring $n$ Ach, has been criticized for practical limitations that have inhibited more widespread exploration of achievement motivation theory. Problems of interrater reliability, rigorous scoring-training requirements, and lengthy scoring procedures have led to the search for nonprojective techniques to supplement the Thematic Apperception Test (Lynn). The Lynn Achievement Motivation Questionnaire has been used with promising results on many continents. The work of these investigators indicate that $n$ Ach is a conscious phenomenon and therefore subject to direct self-report. These findings provide experimental evidence that questionnaire measures of $n$ Ach could elicit valid data, thus clearing the path for large scale research on achievement motivation (Holmes and Tyler, 1965; Hines, 1972). Further, the age and experience factors in employment do not, apparently, affect the results obtained in earlier work by Lynn thereby indicating that this questionnaire is usable with this study's employee
groups. Finally, construct validity based upon achievement motivation theory has been established by Lynn in his questionnaire development processes.

3. Beliefs About Work (Buchholz)

Through a conceptual framework for measuring beliefs about work, Buchholz, during the period 1977-78, identified five beliefs about work systems. This identification of five beliefs about work systems and other independent studies lends credibility to construct validity. For example, each of the five belief systems were drawn from the literature such as Work Ethic and Humanistic Beliefs. Hypothesis statements were developed for each belief system. Buchholz's analysis showed that there were no significant interactions between the five belief system items thereby rendering each belief system apparently independent.

Content validity was developed through the use of experts who participated in a card sorting technique based on anticipated consistency of arrangement of belief statements into definitive groupings. A 90 percent consistency existed among the experts using the card sorting technique. In addition to the card sort to determine the independence of each belief statement from other belief statements, factor loadings determined from Varimax rotations were determined. The factor rotation results demonstrated the independence of each collection of statements and that each statement belonged to the belief group to which the card sort originally assigned it.

Common factor loading ranges for each belief system are: Humanistic, .46 to .63; Marxist-related, .51 to .74; Organization, .40 to .59; Leisure, .40 to .72; Work Ethic, .41 to .52.
These factors accounted for 40.8 percent of the common factor variance. This leaves 59.2 percent for specific variance and error variance.

Reliability Data: Cronbach-Alpha Reliability co-efficients and split-half reliability co-efficients corrected by the Spearman-Brown prophecy formula were run by Buchholz (see Table 20 below).

**TABLE 20**

<table>
<thead>
<tr>
<th></th>
<th>Alpha</th>
<th>Split-Half</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Ethic</td>
<td>0.606</td>
<td>0.660</td>
</tr>
<tr>
<td>Organizational</td>
<td>0.706</td>
<td>0.722</td>
</tr>
<tr>
<td>Marxist-Related</td>
<td>0.737</td>
<td>0.709</td>
</tr>
<tr>
<td>Humanistic</td>
<td>0.810</td>
<td>0.806</td>
</tr>
<tr>
<td>Leisure</td>
<td>0.682</td>
<td>0.718</td>
</tr>
</tbody>
</table>

The instrument was used among management personnel in the retail-wholesale trade. This relates to the employer/supervisor sample in the present study. Young people under 30 years of age were part of Buchholz's study and indicated ages similar to this study's age group. Limitations on the use of this instrument derive from the fact that it has not been used with cooperative distributive education-trained respondents.
4. **Job Involvement (Lodahl and Kejner)**

The purpose of this instrument is to measure the degree of an individual's work commitment.

In an attempt to shorten the 20-item job-involvement scale for use in space-crammed large questionnaires (such as in this study), Lodahl and Kejner isolated six items loading highest on total job involvement as a single scale (Lodahl and Kejner, p. 30). It is this 6-item scale that is used in this study to measure job involvement. Lodahl and Kejner performed a split-half correlation (based on odd - versus even-numbered items) with the 6-item scale with the result of $r = .57$; Corrected with the Spearmen-Brown formula the reliability of the 6-item scale is estimated at .73. The correlation between the 6-item total and the 20-item total is .87. With about 76 percent of the variance in the 20-item total accounted for in the 6 items, Lodahl and Kejner state, "it would seem reasonable to substitute the 6-item scale where space is at a premium," (p. 30).

Common factor loading ranges for each of the six job involvement items used in this study in the order presented are:
Item 1, .52 to .81; Item 2, .63 to .83; Item 3, .52 to .40; Item 4, .63 to .77; Item 5, .51 to .51; Item 6, .33 to .35.

As evidence of validity Lodahl and Kejner performed an analysis of variance, which indicated that the three samples (nurses, engineers, and college students) differed in respect to job involvement scores (p. 30).

The research on job involvement as a personal characteristic reported by Lodahl and Kejner demonstrates the following:
1. Job involvement is relatively unaffected by changes in the work environment.

2. It was found that no relationship between age and job involvement existed.

3. It was found that no relationship exists between marital status and job involvement.

4. It was found that no relationship exists between the length of time that a person has been on the job and job involvement.

5. It was found that a strong relationship exists between Work Ethic and job involvement.

6. It was found that no significant differences in job involvement and job status levels, and job levels exist.

7. It was found that no significant relationship exists between job performance and job involvement.

8. It was found that a strong relationship exists between job satisfaction and job involvement.

A current limitation of use of this 6-item scale is the rather narrow range of occupations sampled prior to this study; engineers, nurses and students. The instrument purports, however, to measure job involvement and is currently the major instrument in use for this purpose (Rabinowitz and Hall).

5. Perceptions of Prior Education Questionnaire (Employee and Employer)

The State of Texas developed a student information system (TEX-SIS) to follow-up graduates from vocational programs and to obtain employers' assessments of the adequacy of the training received by recent graduates.
The specific instrument used for both the employee and employer samples in this study was:

Texas Student Information System
(TEX-SIS): Subsystem V-Employer
Follow-up, Questionnaire 10.

The content of the questionnaire relates to rating of training received by the graduate in personal and technical skill areas and other questions specific to Texas vocational education needs. The intended population of respondents are employers. However, this questionnaire using only personal and technical skills was used in this study for both employee groups as well. This was done in order to obtain an identical match of items to be used in comparison analysis. Reliability and validity information is not available for the entire questionnaire or the personal and technical skill areas (See Vocational Education Measures, Gray, in press, p. 261).

B. Employer:

The following instruments were used to collect data from the employer subjects:

1. **Employee Performance Appraisal (Bruce)**

The purpose of this instrument is to assess the major factors involved in success in pursuing a job. Seven areas of work are assessed: (1) quality of work, (2) quantity of work, (3) job knowledge, (4) initiative, (5) interpersonal relationships, (6) dependability, and (7) potential. The instrument involves a modified Likert-type response mode and space for supplementary comments for each of the seven items. The intended population of investigated subjects is that of all
employees within any age grouping, with employers or supervisors intended as the respondents.

Published test data: later reliability analyses indicate reliability, whereas established validity data indicate correlation of job completion (Gray, in over employee subject.

2. The employee subject.
employees within any age grouping, with employers or supervisors intended as the respondents.

**Published test data:** Reliability: interrater reliability analyses indicate reliabilities range from .75 to .90. Unpublished validity data indicate correlations of .76 to .93 with other measures of job completion (Gray, in press, p. 147).

2. **Beliefs About Work** (Buchholz)

The same instrument given to employees was given to the employer subjects.

3. **Perceptions of Prior Education-Employer Questionnaire**

The same questionnaire was used for employers as well as for employee subjects.
APPENDIX C

SCORING PROCEDURE FOR ALL INSTRUMENTS
SCORING PROCEDURE FOR ALL INSTRUMENTS

1. Minnesota Satisfaction Questionnaire

This questionnaire makes up three subscales from a 20 item total.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic</td>
<td>1,2,3,4,7,8,9,10,11,15,16,20 (12)</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>5,6,12,13,14,19 (6)</td>
</tr>
<tr>
<td>General Satisfaction</td>
<td>All above items plus 17,18 (20)</td>
</tr>
</tbody>
</table>

Scoring

Scoring Weight

Very dissatisfied (VDS) 1
Dissatisfied (DS) 2
Undecided (N) 3
Satisfied (S) 4
Very Satisfied (VS) 5

Missing Items = 3.

2. Job Involvement

A single scale with 6 items.
Degree of job involvement is by summed item scores.
Item # 6 is reversed (Q6 = 5 value checked for Q6).
Missing items set at a value 2.5.

3. Beliefs About Work

This questionnaire of 45 items comprises five subscales of item groups as follows:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanistic</td>
<td>17,40,38,14,8,37,19,33,24,32 (10)</td>
</tr>
</tbody>
</table>
Marxist-related 44,29,27,45,15,34,36,28,2,13,26 (11)
Organizational 25,22,3,18,10,31,9,41,42 (9)
Leisure 43,35,16,5,20,12,21,23 (8)
Work Ethic 7,39,6,4,11,1,30 (7)

Scoring

<table>
<thead>
<tr>
<th>Disagreement</th>
<th>Scoring Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>1</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
</tr>
<tr>
<td>Neither Agree Nor</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
</tr>
</tbody>
</table>

Agreement

<table>
<thead>
<tr>
<th>Mild</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>5</td>
</tr>
</tbody>
</table>

Missing items scored and coded as 3.

4. Achievement Motivation

A single scale with 8 Yes or No items.

Scoring: 1 point for "Yes" on items 2,3,7,8
1 point for "No" on items 1,4,5,6
0 points otherwise.

High n-Ach score = 6,7 or 8.
Medium score = 4 or 5.
Low score = 0,1,2 or 3.

Missing and wrong items coded as zero.

5. Employee Performance Appraisal

Seven Likert scale items make up this questionnaire.

Scale

Quantity
Quality
Job Knowledge
Initiative
Interpersonal Relationships
Dependability
Potential

Overall Performance is the summation of all 7 item response values.

Missing items scored = 1 or zero, whichever is the lowest for the item.

6. Perceptions of Prior Education

Two (2) subscales make up this questionnaire.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Items</th>
<th>Item Response Category</th>
<th>Scoring Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Skills</td>
<td>a, b, c, d, e, f, g, h, i, j</td>
<td>Very Good</td>
<td>1</td>
</tr>
<tr>
<td>Technical Skills</td>
<td>a, b, c, d, e, f, g, h, i, j, k</td>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neutral</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very Poor</td>
<td>5</td>
</tr>
</tbody>
</table>

Missing items scored and coded as 3.
APPENDIX D

PERMISSION TO USE INSTRUMENTS
The New University of Ulster
Coleraine Co. Londonderry Northern Ireland BT52 1SA

Department of Psychology

6th February, 1979

Dear Mr. Emery,

Thank you for your letter of 16th January. I should of course be happy to give permission for the use of my questionnaire. I am at present getting out a much fuller version which you might like to use - I should be able to have it ready in about 8 weeks.

Yours sincerely,

R. LYNN
Professor of Psychology

Mr. E. A. Emery, Jr.,
2300 Swansea Road,
Columbus, OHIO 43221,
U.S.A.
Ervin A. Emery, Jr.
2300 Swansea Road
Columbus, Ohio 43221

Dear Mr. Emery:

Thank you for your inquiry about my study of work beliefs. Enclosed are a short and long version of my questionnaire. You have my permission to use either of these with appropriate credits.

Also enclosed is another article using these instruments that explains the whole process more thoroughly. The validity of the instruments depends on each particular factor structure, so my data would not be relevant for your purposes. Regarding reliability data, I used a factor analysis program at the University of Pittsburg that gave me split-half and Cronbach-Alpha reliability coefficients.

Please let me know if I can be of further assistance. Your dissertation sounds interesting and I wish you the best of luck. Please send me a copy of the formal proposal.

Sincerely yours,

Rogene A. Buchholz
Research Associate, CSAB

RAB/1mb

enclosure
January 8, 1979

Mr. Ervin A. Emery, Jr.
2300 Swansea Road
Columbus, OH 43221

Dear Mr. Emery:

Our catalog of current publications is enclosed. You may disregard the notice of 10% increase in prices for orders reaching us prior to February 1, 1979. No permission is required in connection with your intended use of the Employee Performance Appraisal. You need only purchase whatever quantity you require, and utilize the forms in a professional manner. Under the copyright law, no reproduction in any form is permitted. Should you require a copy of the form in your dissertation, we suggest that the actual form be utilized.

The form is a self contained instrument. Description in full appears in the enclosed catalog. You may find it appropriate to gather reliability data within your own situation, or you may rely on the professional development of the instrument. No doubt your advisor will make suggestions along this line.

We look forward to being of service.

Sincerely yours,

Martin M. Bruce, Ph.D.,
Publisher

MMB/bk incl.
Mr. Ervin A. Emery, Jr.
2300 Swansea Road
Columbus, OH 43221

Dear Ervin:

We have processed your order for the Minnesota Satisfaction Questionnaire, Short Form, and those questionnaires are being shipped to you in a separate package via parcel post. Our usual procedure is to ask graduate students requesting to use the MSQ to submit a brief statement of the use to be made of the instrument. The permission request should be counter-signed by the student's research adviser, who should be a qualified psychologist. I would be grateful if you would forward such a permission request to us for our records. We also request that we receive a copy of the report, article, etc. that results from the study using the MSQ for our archives.

Thank you for your order. If I can be of further assistance to you in your use of the MSQ, please do not hesitate to contact me. I wish you good luck in your dissertation research.

Sincerely,

George A. Henly,
Administrative Assistant
February 8, 1979

Mr. Ervin A. Emery, Jr.
2300 Swansea Road
Columbus, Ohio 43221

Dear Mr. Emery:

You have my permission to use the job involvement scale in your dissertation research. I would appreciate seeing a copy of any interesting results that you might obtain.

Very sincerely yours,

[Signature]

Thomas M. Lodahl
Professor of Administration

TML/pmg
APPENDIX E

PILOT STUDY RELIABILITY RESULTS
Pilot Study Reliability Results

I. Employees:

1. **Lynn's Achievement Motivation Questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>DE (n = 32)</th>
<th>Co-workers (n = 32)</th>
<th>Combined Groups (N = 64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-R 20</td>
<td>0.404</td>
<td>0.687</td>
<td>0.580</td>
</tr>
<tr>
<td>K-R 21</td>
<td>0.258</td>
<td>0.578</td>
<td>0.467</td>
</tr>
<tr>
<td>Horst Correction for K-R</td>
<td>0.447</td>
<td>0.763</td>
<td>0.641</td>
</tr>
<tr>
<td>Mean of Individual Scores</td>
<td>6.000</td>
<td>5.656</td>
<td>5.828</td>
</tr>
<tr>
<td>Variance of Individual Scores</td>
<td>1.938</td>
<td>3.351</td>
<td>2.674</td>
</tr>
<tr>
<td>Scale</td>
<td>DE</td>
<td>Co-Worker</td>
<td>DE and Co-Worker</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>Item - Test</td>
<td>Item - Test</td>
<td>Item - Test</td>
</tr>
<tr>
<td></td>
<td>Correlation</td>
<td>Correlation</td>
<td>Correlation</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>K-R 8</td>
<td>Range</td>
</tr>
<tr>
<td>2. Belief About Work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Ethic</td>
<td>0.712</td>
<td>0.250 - 0.730</td>
<td>0.587</td>
</tr>
<tr>
<td>Organizational</td>
<td>0.670</td>
<td>0.202 - 0.660</td>
<td>0.798</td>
</tr>
<tr>
<td>Marxist-Related</td>
<td>0.638</td>
<td>0.119 - 0.783</td>
<td>0.304</td>
</tr>
<tr>
<td>Humanistic</td>
<td>0.855</td>
<td>0.490 - 0.810</td>
<td>0.804</td>
</tr>
<tr>
<td>Leisure</td>
<td>0.484</td>
<td>-0.221 - 0.710</td>
<td>0.583</td>
</tr>
<tr>
<td>3. Percentages of Prior Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Skills</td>
<td>0.896</td>
<td>0.494 - 0.856</td>
<td>0.861</td>
</tr>
<tr>
<td>Technical Skills</td>
<td>0.854</td>
<td>0.444 - 0.723</td>
<td>0.805</td>
</tr>
<tr>
<td>4. Job Involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.868</td>
<td>-0.120 - 0.905</td>
<td>0.542</td>
</tr>
<tr>
<td>5. Minnesota Satisfaction Questionnaire (MSQ) Short Form (K-R 8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic</td>
<td>0.817</td>
<td>0.237 - 0.750</td>
<td>0.751</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>0.825</td>
<td>0.243 - 0.668</td>
<td>0.736</td>
</tr>
<tr>
<td>Overall</td>
<td>0.852</td>
<td>0.237 - 0.750</td>
<td>0.836</td>
</tr>
</tbody>
</table>
II. Employer/Supervisor (n = 32)

1. Perceptions of Prior Education
(K-R 8)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Item - Test Correlation Range</th>
<th>For DE</th>
<th>Item - Test Correlation Range</th>
<th>For Co-Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Skills</td>
<td>0.889 0.464 - 0.787</td>
<td>0.943  0.620 - 0.894</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Skills</td>
<td>0.847 0.300 - 0.837</td>
<td>0.929  0.431 - 0.882</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Employees Performance Appraisal
(K-R 8)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Item - Test Correlation Range</th>
<th>For DE</th>
<th>Item - Test Correlation Range</th>
<th>For Co-Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.900 0.477 - 0.856</td>
<td>0.907  0.578 - 0.906</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Beliefs About Work (employer/supervisor only)

<table>
<thead>
<tr>
<th>Scales</th>
<th>K-R 8</th>
<th>Item - Test Correlation Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanistic</td>
<td>0.981</td>
<td>0.768 - 0.962</td>
</tr>
<tr>
<td>Marxist-Related</td>
<td>0.938</td>
<td>0.542 - 0.888</td>
</tr>
<tr>
<td>Organizational</td>
<td>0.925</td>
<td>0.577 - 0.854</td>
</tr>
<tr>
<td>Leisure</td>
<td>0.834</td>
<td>0.503 - 0.775</td>
</tr>
<tr>
<td>Work Ethic</td>
<td>0.834</td>
<td>0.517 - 0.746</td>
</tr>
</tbody>
</table>
APPENDIX F

VARIABLE LIST FOR PILOT STUDY
VARIABLE LIST FOR PILOT STUDY

1. Minnesota Satisfaction - Intrinsic; DE Score minus Co-worker score.
2. Minnesota Satisfaction - Extrinsic; DE Score minus Co-worker score.
3. Minnesota Satisfaction - Overall; DE Score minus Co-worker score.
4. Job Involvement; DE Score minus Co-worker score.
5. Beliefs About Work Humanistic; DE Score minus Co-worker score.
6. Beliefs About Work Marxist-Related; DE Score minus Co-worker score.
7. Beliefs About Work Organization; DE Score minus Co-worker score.
8. Beliefs About Work Leisure; DE Score minus Co-worker score.
10. Employee Performance Appraisal Quantity of work; rating of DE minus rating of Co-worker.
11. Employee Performance Appraisal Quality of work; rating of DE minus rating of Co-worker.
17. Employee Performance Appraisal Total; rating of DE minus rating of Co-worker.

18. DE Intrinsic vs. Extrinsic Satisfaction.


21. DE Employees Perceptions of Prior Education Personal Skills; DE self-appraisal score minus Employer rating score of DE.

22. DE Employees Perceptions of Prior Education Technical Skills; DE self-appraisal score minus Employer rating score of DE.

23. Co-worker Perceptions of Prior Education Personal Skills; Co-Worker minus Employer, DE self-appraisal score minus Employer rating score of DE.

24. Co-worker Perceptions of Prior Education Technical Skills; Co-worker minus Employer, DE self-appraisal score minus Employer rating score of DE.

25. Achievement Motivation; DE minus Co-worker, DE self-appraisal score minus Employer rating score of DE.
APPENDIX G

DETERMINATION OF COLUMBUS, OHIO, SAMPLE SIZE

FROM PILOT STUDY DATA
Determination of Columbus, Ohio, Sample Size From Pilot Study Data

The process to determine sample size from Columbus, Ohio, using the pilot study data was as follows:

I. Score Transformation

Each of the original twenty-five variables were listed as a percentage of the total scale for both the DE scores and the co-worker scores thereby transforming every instrument scale score into a range from 0 to 1. It was then possible to make a decision as to what would constitute an important difference between mean percentages (Kerlinger, 1973, pp. 151-152). This difference in mean percentages then translates into a difference in the means of the original scores that is larger for scores with a larger scale range and smaller for scores with a smaller scale range.

II. Determination of the confidence interval (CI)

The following questions were asked:

1. What is the desired maximum variance of the difference in mean percentages?

2. What is to be the critical difference between scores?

The critical difference for this study was set at .10 (d = .10). If a confidence interval (CI) is formed for the difference in the mean percentages, this CI should have a maximum length equal to twice the difference or CI = .20 (±.10). It is desirable for the CI to have a length of .20 or less because if a difference of .10 is actually observed, the CI should not contain zero. That is, if the limits of the CI for the difference in mean percentages lie on opposite sides of zero then the CI indicates that there might be no difference between the means. If the difference is zero then there might not be a difference in population
The confidence interval (CI) takes the form of:

\[ CI = \left( \bar{y} \pm Z_{\alpha/2} \sqrt{\frac{v}{n}} \right) \]

where: \( \bar{y} \) = overall mean,

and \( v(\bar{y}) \) = an estimate of the true variance of the overall mean (mean of differences).

The length (L) of the confidence interval is:

\[ L = 2Z_{\alpha/2} \sqrt{\frac{v}{n}} \]

Since \( L = .20 \) as mentioned above,

\[ \frac{Z_{\alpha/2}}{\sqrt{\frac{v}{n}}} = .10. \]

The desired level of \( \alpha = 0.05 \), giving \( Z_{\alpha/2} = 1.96 \).

Substituting and solving,

\[ \frac{1}{v} = \frac{1}{\sqrt{\frac{.10}{1.96}}} = .0026. \]

The variance (.0026) is the estimated variance to obtain a confidence interval of the desired length of .10 with alpha set at .05. By not specifying a beta probability the risk of committing a beta error is .50/.50 for this study (Gilford, p. 189). This variance estimation (.0026) is the maximum variance to be applied in determining the number of programs and the number of students within programs for the two stage sample size.
III. Between - and Within-Program Variance Estimates

Using the pilot study data from the eight programs, a within-program variance estimate and a between-program variance estimate was calculated for each of the twenty-five variables as byproducts of the same test procedures as that envisioned for hypothesis testing (See Chapter III).

The within-programs variance estimated was then pooled. These computations were performed using the Statistical Analysis System (SAS) at The Ohio State University.

Pooling the within-program variances allows application of Cochran's formula (Cochran, p. 278) to obtain an estimate of the true variance along with the between-program variance estimate. The formula used was:

\[ v(\bar{y}..) = (1 - \frac{n}{N}) \frac{s_1^2}{n} + \frac{n}{N} \left(1 - \frac{m}{M}\right) \frac{s_2^2}{m \cdot n} \]

where: \( v(\bar{y}..) \) = equals an estimate of true variance of the overall mean (mean of differences).

\( n \) = number of programs sample (2 ≤ n ≤ 14 for Columbus, Ohio).

\( N \) = total number of programs (for Columbus, Ohio, \( N = 14 \)),

\( s_1^2 \) = Estimate of between-program variances,

\( s_2^2 \) = Estimate of within-program variance (pooled),

\( m \) = number of students per program (2 ≤ m ≤ 17 for Columbus, Ohio),

and

\( M \) = total number of students (Mean \( M = 17 \) per program for Columbus, Ohio, employed DE program graduates).

Further:

\[ s_1^2 = \frac{1}{n-1} \sum_{i=1}^{n} (\bar{y}_i - \bar{y}..)^2 \] measures the variability of the program means around the overall mean,
and

\[ s_2^2 = \frac{1}{n(m-1)} \sum_{i=1}^{n} \sum_{j=1}^{m} (y_{ij} - \bar{y}_j)^2 \]

measures the variability of the observations around their program mean (assumed to be the same or approximately the same for each primary unit),

where:

\[ \bar{y}_{..} = \frac{1}{n} \sum_{i=1}^{n} \bar{y}_i = \frac{1}{m n} \sum_{i=1}^{n} \sum_{j=1}^{m} y_{ij} = \text{overall mean}, \]

\[ \bar{y}_i = \text{sample mean per subunit in the ith primary unit (program means)}, \]

\[ y_{ij} = \text{value obtained for the jth subunit in the ith primary unit (the difference between subscale score of the non-DE worker j within the ith primary sampling unit and the subscale score of DE worker j within the ith primary sampling unit)} \] (Cochran, pp. 276-79).

Using the range of programs and students within programs given above and selecting the \( v (\bar{y}_{..}) = .0026 \) that was computed above as the most conservative estimate of the true variance, the variances were computed for each of the variables (SAS).

<table>
<thead>
<tr>
<th>Number of Programs</th>
<th>Number of Students</th>
<th>Maximum Variance</th>
<th>Percentage</th>
<th>DE Employee Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>5</td>
<td>.0028</td>
<td>.104</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>.0027</td>
<td>.102</td>
<td>48</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>.0026</td>
<td>.099</td>
<td>56</td>
</tr>
</tbody>
</table>

The maximum variance in each of the three cases above was due to the Dependability scale of the Employees Performance Appraisal (.0435). This represents a range of sample size that meet the \( \text{d} = .10 \) (a 10 percent
difference) between-means criteria. For the Columbus, Ohio, study the last listing was chosen. This one was the sample size producing a variance closest to the estimated maximum which would indicate a .10 (10 percent) difference between paired means.
APPENDIX H

PERMISSION TO CONDUCT THE STUDY IN

COLUMBUS, OHIO SCHOOL DISTRICT
May 7, 1979

Mr. Ervin A. Emery, Jr.
2300 Swansea Rd.
Columbus, Ohio 43221

Dear Mr. Emery:

I have reviewed your proposal. Inasmuch as the study involves teachers of graduated D.E. students, the school system's only concerns about your study are:

1. That teachers participate in the study on a voluntary basis.

2. That student records not be referenced for the study unless consent from the graduate has been granted in writing.

3. That the study not be represented as an endorsed activity of the Columbus Public School.

I do not wish to convey the thought that we are not interested in the study, when in fact we are. I merely wish to make certain that employers or graduates clearly understand that it is yours and The Ohio State University's study.

Sincerely,

Howard Merriman
Assistant Superintendent,
Management Services

cc: Bill Bigelow
APPENDIX I

THE OHIO STATE UNIVERSITY

HUMAN SUBJECTS APPROVAL
THE OHIO STATE UNIVERSITY

RESEARCH INVOLVING HUMAN SUBJECTS

PROPOSED USE OF HUMAN SUBJECTS: ACTION OF THE REVIEW COMMITTEE

The Behavioral & Social Sciences Review Committee has taken the following action:

1. Approve

2. Approve with Conditions

3. Disapprove

with regard to the employment of human subjects in the proposed research entitled: Contributing Effects Cooperative High School Distributive Education Training Makes on Graduates' Employment

_ Ottos Santos, Jr./Ervin A. Emery, Jr. _ is listed as the principal investigator.

The conditions, if any, are attached and are signed by the committee chairperson and by the principal investigator. If disapproved, the reasons are attached and are signed by the committee chairperson.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subjects Review Committee for the required retention period.

Date March 23, 1979 Signed (Chairperson)
The research protocol entitled "Contributing Effects Cooperative High School Distributive Education Training Makes on Graduates' Employment" presented for review by the Human Subjects Review Committee to ensure the proper protection of the rights and welfare of the individuals involved with consideration of the methods used to obtain informed consent and the justification of risks in terms of potential benefits to be gained. The Committee action was:

☐ APPROVED
☒ APPROVED WITH CONDITIONS BELOW
☐ DEFERRED - COMMENTS BELOW
☐ DISAPPROVED
☐ NO REVIEW NECESSARY

CONDITIONS/COMMENTS:

The subjects were deemed not at risk and the protocol was approved with the following restriction:

Subjects should be informed that they need not answer any questions to which they may object.

If you agree to the above conditions, please sign this form in the space(s) provided and return it with any additional information requested to Room 205, Ohio State University Research Foundation, 1314 Kinnear Road, Campus, within one week. Upon such compliance, the approval form will be mailed to you. (In the case of a deferred protocol, please submit the requested information at your earliest convenience. The next meeting of the Committee is two weeks from last meeting date.)

Date 4/2/79 Signature (Principal Investigators)

Date __________________ Signature (Chairman, Behavioral and Social Sciences Human Subjects Review Committee)
APPENDIX J

MISSING ITEMS BY GROUP AND INSTRUMENT

149
### Missing Items By Group and Instrument

**Table 21**

Missing Items By Group and Instrument
Columbus, Ohio Type 20 Programs

<table>
<thead>
<tr>
<th>Scale</th>
<th>Reporting Sample Group</th>
<th>Number of Items on Scale</th>
<th>Number of Groups</th>
<th>Total Possible Responses</th>
<th>Number of Items Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employer Performance</strong></td>
<td><strong>Appraisal</strong></td>
<td>Employer (n=44)</td>
<td>7</td>
<td>2 (DE; co-worker)</td>
<td>606</td>
</tr>
<tr>
<td><strong>Perception of Employee's</strong></td>
<td><strong>Prior Education</strong></td>
<td>Employer (n=44)</td>
<td>21</td>
<td>2 (DE; Co-Worker)</td>
<td>1848</td>
</tr>
<tr>
<td><strong>Beliefs About Work</strong></td>
<td></td>
<td>Employer (n=44)</td>
<td>45</td>
<td>2 (DE; Co-Worker)</td>
<td>3960</td>
</tr>
<tr>
<td><strong>Perceptions of Prior</strong></td>
<td><strong>Education</strong></td>
<td>DE (n=44)</td>
<td>1</td>
<td>1</td>
<td>924</td>
</tr>
<tr>
<td><strong>Beliefs About Work</strong></td>
<td></td>
<td>DE (n=44)</td>
<td>1</td>
<td>1</td>
<td>1980</td>
</tr>
<tr>
<td><strong>Minnesota Satisfaction</strong></td>
<td><strong>Questionnaire</strong></td>
<td>DE (n=44)</td>
<td>1</td>
<td>1</td>
<td>880</td>
</tr>
<tr>
<td><strong>Job Involvement:</strong></td>
<td></td>
<td>DE (n=44)</td>
<td>6</td>
<td>1</td>
<td>264</td>
</tr>
<tr>
<td><strong>Achievement Motivation</strong></td>
<td></td>
<td>DE (n=44)</td>
<td>8</td>
<td>1</td>
<td>354</td>
</tr>
<tr>
<td><strong>Perceptions of Prior</strong></td>
<td><strong>Education</strong></td>
<td>Co-Worker (n=44)</td>
<td>21</td>
<td>1</td>
<td>924</td>
</tr>
</tbody>
</table>
### Missing Items by Group and Instrument

Table 21 (continued)

Missing Items by Group and Instrument

Columbus, Ohio Type 20 Programs

<table>
<thead>
<tr>
<th>Scale</th>
<th>Reporting Sample</th>
<th>Number of Items on Scale</th>
<th>Number of Groups</th>
<th>Total Possible Responses</th>
<th>Number of Items Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs About Work Co-Worker</td>
<td>Co-Worker (n=44)</td>
<td>45</td>
<td>1</td>
<td>1980</td>
<td>28</td>
</tr>
<tr>
<td>Minnesota Satisfaction Questionnaire Co-Worker</td>
<td>Co-Worker (n=44)</td>
<td>20</td>
<td>1</td>
<td>880</td>
<td>10</td>
</tr>
<tr>
<td>Job Involvement Co-Worker (n=44)</td>
<td>Co-Worker (n=44)</td>
<td>6</td>
<td>1</td>
<td>264</td>
<td>4</td>
</tr>
<tr>
<td>Achievement Motivation Co-Worker (n=44)</td>
<td>Co-Worker (n=44)</td>
<td>8</td>
<td>1</td>
<td>354</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX K

COLUMBUS, OHIO RELIABILITY RESULTS
Columbus, Ohio Reliability Results

I. Employees

1. Lynn's Achievement Motivation Questionnaire

<table>
<thead>
<tr>
<th></th>
<th>DE (N = 44)</th>
<th>Co-Worker (n = 44)</th>
<th>Group Score (N = 88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-R 20</td>
<td>0.373</td>
<td>0.435</td>
<td>0.402</td>
</tr>
<tr>
<td>K-R 21</td>
<td>0.183</td>
<td>0.212</td>
<td>0.198</td>
</tr>
<tr>
<td>Horst Correction Fork-R</td>
<td>0.409</td>
<td>0.485</td>
<td>0.444</td>
</tr>
<tr>
<td>Mean of Individual Scores</td>
<td>5.455</td>
<td>5.409</td>
<td>5.432</td>
</tr>
<tr>
<td>Variance of Individual Scores</td>
<td>2.066</td>
<td>2.151</td>
<td>2.109</td>
</tr>
<tr>
<td>Scale</td>
<td>DE Item - Test Correlation Range</td>
<td>Co-Worker Item - Test Correlation Range</td>
<td>DE and Co-Worker Item - Test Correlation Range</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>K-R 8</td>
<td>K-R 8</td>
<td>K-R 8</td>
</tr>
<tr>
<td><strong>2. Belief About Work</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Ethic</td>
<td>0.648 - 0.661</td>
<td>0.718 - 0.622</td>
<td>0.673 - 0.642</td>
</tr>
<tr>
<td>Organizational</td>
<td>0.646 - 0.603</td>
<td>0.630 - 0.570</td>
<td>0.652 - 0.557</td>
</tr>
<tr>
<td>Marxist - Related</td>
<td>0.641 - 0.590</td>
<td>0.551 - 0.695</td>
<td>0.584 - 0.603</td>
</tr>
<tr>
<td>Humanistic</td>
<td>0.833 - 0.729</td>
<td>0.910 - 0.831</td>
<td>0.885 - 0.720</td>
</tr>
<tr>
<td>Leisure</td>
<td>0.632 - 0.775</td>
<td>0.613 - 0.694</td>
<td>0.609 - 0.731</td>
</tr>
<tr>
<td><strong>3. Perceptions of Prior Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Skills</td>
<td>0.762 - 0.721</td>
<td>0.869 - 0.808</td>
<td>0.855 - 0.726</td>
</tr>
<tr>
<td>Technical Skills</td>
<td>0.840 - 0.724</td>
<td>0.769 - 0.695</td>
<td>0.832 - 0.714</td>
</tr>
<tr>
<td><strong>4. Job Involvement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.839 - 0.866</td>
<td>0.756 - 0.667</td>
<td>0.805 - 0.757</td>
</tr>
<tr>
<td><strong>5. Minnesota Satisfaction Questionnaire (MSW) Short Form (K-R 8)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic</td>
<td>0.877 - 0.883</td>
<td>0.820 - 0.754</td>
<td>0.853 - 0.811</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>0.887 - 0.815</td>
<td>0.869 - 0.812</td>
<td>0.878 - 0.787</td>
</tr>
<tr>
<td>Overall</td>
<td>0.922 - 0.855</td>
<td>0.885 - 0.750</td>
<td>0.907 - 0.792</td>
</tr>
</tbody>
</table>
II. Employer/Supervisor (n = 32)

1. Perceptions of Prior Education (K-R 8)

<table>
<thead>
<tr>
<th>Scale</th>
<th>For DE Item - Test Correlation Range</th>
<th>For Co-Worker Item - Test Correlation Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>K-R 8 0.916 0.599 - 0.823</td>
<td>K-R 8 0.941 0.671 - 0.852</td>
</tr>
<tr>
<td>Personal Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Skills</td>
<td>0.852 0.440 - 0.710</td>
<td>0.869 0.451 - 0.777</td>
</tr>
</tbody>
</table>

2. Employees Performance Appraisal (K-R 8)

<table>
<thead>
<tr>
<th>Overall</th>
<th>For DE 0.934 0.682 - 0.884</th>
<th>Co-Worker 0.923 0.715 - 0.872</th>
<th>DE and Co-Worker 0.928 0.695 - 0.879</th>
</tr>
</thead>
</table>

3. Beliefs About Work (employer/supervisor only) (K-R 8)

<table>
<thead>
<tr>
<th>Scales</th>
<th>K-R 8 0.904</th>
<th>Item - Test Correlation Range 0.600 - 0.789</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marxist-Related</td>
<td>0.625 -0.172 - 0.747</td>
<td></td>
</tr>
<tr>
<td>Organizational</td>
<td>0.853 0.372 - 0.752</td>
<td></td>
</tr>
<tr>
<td>Leisure</td>
<td>0.556 0.077 - 0.632</td>
<td></td>
</tr>
<tr>
<td>Work Ethic</td>
<td>0.762 0.300 - 0.717</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX L

POST HOC MULTIPLE COMPARISONS

FOR HYPOTHESIS 1.3.2
Post Hoc Multiple Comparisons
For Hypothesis 1.3.2

Tukey's HSD Procedure

The following procedures were adopted from Kennedy (pp 5.35 - 5.40). To select a proper post-hoc comparison procedure the following criteria were observed:

1. Only pairwise combinations of treatment means are desired.
2. All of the treatment groups in this study have equal number of observations (DE, n = 44; Co-worker, n = 44, Employer, n = 44).
3. All possible pairwise comparisons are to be made.
4. The pairwise comparisons are nonindependent but there are many of them for these post hoc tests. That is, more than 50 percent of the possible pairwise combinations are desired.
5. The .05 alpha level for the entire aggregate of pairwise comparison tests was established prior to testing. This level was established hypothesiswise to fully assess the results of testing the omnibus null hypothesis that \( \mu_1 = \mu_2 = \mu_3 \).

Tukey's HSD procedure best meets all of the above post hoc criteria for test selection and was the one selected for use in this study.

When using a regression procedure the best estimate of the variance \( (\sigma^2) \) is the sample's mean square residual (MSR). Therefore the equation may be written:
where $\psi_{HSD}$ denotes the minimal significant distance between the two extreme means.

$q_3$ denotes Student's Range statistic,

$MSR$ denotes mean square residual from the regression table,

and

$n = \text{number of subjects within a group.}$

The important features of the Tukey procedure are:

1. Tukey's test obtains the minimal difference between means for significance. That is, the procedure is a function of the number of treatment means in hand.

2. Tukey's procedure is first applied to the extreme specific effect. That is, the difference observed between the mean of greatest magnitude and the mean of least magnitude in an ordered set is applied.

3. Given 1 and 2 above, the test of the extreme effect is made at the desired alpha level (.05 for this study).

Since the alpha level (.05) is controlled for in the extreme situation, it follows that the desired alpha will not be exceeded when the other pairwise comparisons are made (p. 5139).

Post Hoc Tests

1. Marxist Belief About Work

Data values:
1. A hypothesiswise error rate of .05 is desired.
2. Number of groups: $a = 3$
3. Number of subjects in each group: $n = 44$.
4. Mean Square Residual (See Table 8): $MSR = 18.184$.
5. Degrees of freedom (See Table 8): $df = 129$.
6. Student's range statistic $q_3$ from Table H in Kennedy (p. A.12) with alpha = .05; $a = 3$, and $MSR \frac{df}{MSR} = 129$ is found to be approximately $3.35$ ($q_3 = 3.35$).
7. Mean Scores:
   - $\bar{X}_3 = 33.91$ (DE)
   - $\bar{X}_2 = 33.77$ (Co-worker)
   - $\bar{X}_3 = 30.61$ (Employer)

   Thus, for these data, Tukey's honest significant difference is:
   $$\hat{HSD} = (3.35) \sqrt{\frac{18.184}{44}} = 2.1535$$

Mean-comparison matrix for this data follows in Table 22.
TABLE 22
Mean-Comparison Matrix For
All Groups on Marxists Beliefs About Work

<table>
<thead>
<tr>
<th>Treatment Means</th>
<th>$\bar{X}_3$ (33.91)</th>
<th>$\bar{X}_2$ (33.77)</th>
<th>$\bar{X}_1$ (30.61)</th>
</tr>
</thead>
<tbody>
<tr>
<td>--</td>
<td>.14</td>
<td>3.3 $^*$</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td></td>
<td>3.16 $^*$</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td></td>
<td></td>
<td>$\bar{X}_3$ (33.91)</td>
</tr>
<tr>
<td>$\bar{X}_2$</td>
<td></td>
<td></td>
<td>$\bar{X}_2$ (33.77)</td>
</tr>
<tr>
<td>$\bar{X}_1$</td>
<td></td>
<td></td>
<td>$\bar{X}_1$ (30.61)</td>
</tr>
</tbody>
</table>

* $p < .017$ for individual comparisons; $p < .05$ for the collection of comparisons.

Examining the mean-comparison matrix for these data reveals that each of the employee group means exceeds the Marxist mean belief about work value of the employer at $\alpha = .05$ level. Thus, $\bar{X}_3$ and $\bar{X}_2$ were found to be significantly different from $\bar{X}_1$.

2. Organizational Belief About Work

Data Values:
1. A hypothesiswise error rate of .05 is desired.
2. Number of groups: $a = 3$
3. Number of subjects in each group: $n = 44$
4. Mean Square Residual (See Table 9): $MSR = 22.370$
5. Degrees of freedom (See Table 9): \( df = 129 \)

6. Student's range statistic \( q \) from Table H in Kennedy (p. A.12) with \( \alpha = .05 \), \( a = 3 \), and \( MSR (df_{MSR} = 129) \) is found to be approximately 3.35 (\( q = 3.35 \))

7. Mean Scores:

\[ \bar{X}_3 = 31.72 \text{ (DE)} \]

\[ \bar{X}_2 = 29.59 \text{ (Co-worker)} \]

\[ \bar{X}_1 = 29.39 \text{ (Employer)} \]

Thus for these data, Tukey's honest significant difference is:

\[ HSD = (3.35) \sqrt{\frac{22.370}{44}} = 2.3886 \]

Mean-comparison matrix follows for this data in Table 23.
Table 23
Mean-Comparison Matrix For
All Groups on Organizational Beliefs About Work

<table>
<thead>
<tr>
<th>Treatment Means</th>
<th>$\bar{X}_3$</th>
<th>$\bar{X}_2$</th>
<th>$\bar{X}_1$</th>
<th>Treatment Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(31.72)</td>
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Examining the mean-comparison matrix for these data reveals no significant difference between the group means for alphas = .05. Therefore, $\bar{X}_3 = \bar{X}_2 = \bar{X}_1$. 
APPENDIX M

DESCRIPTIVE ANALYSIS OF PERSONAL AND TECHNICAL SKILLS AS REPORTED BY CO-WORKERS, DE EMPLOYEES AND EMPLOYER/SUPERVISOR RATINGS
Table 24

Descriptive Analysis of Personal Skills as Reported

By Co-Workers, DE Employees and Employer/Supervisor Ratings on the Two Employee Groups*

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Table 24 (continued)

Descriptive Analysis of Personal Skills as Reported

By Co-Workers, DE Employees and Employer/

Supervisor Ratings on the Two Employee Groups*

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Table 24 (continued)

Descriptive Analysis of Personal Skills as Reported

By Co-Workers, DE Employees and Employer/Supervisor Ratings on the Two Employee Groups*

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<th>DE Per Cent</th>
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* N = 44 in all subject groups
### Table 25

Descriptive Analysis of Technical Skills as Reported

By Co-Workers, DE Employees and Employer/Supervisor Ratings on the Two Employee Groups *

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Table 25 (continued)

Descriptive Analysis of Technical Skills as Reported

By Co-Workers, DE Employees and Employer/Supervisor Ratings on the Two Employee Groups *

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<td>13.6</td>
</tr>
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<td>8</td>
<td>18.2</td>
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<td>27.3</td>
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<td>38.6</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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Table 25 (continued)

Descriptive Analysis of Technical Skills as Reported

By Co-Workers, DE Employees and Employer/Supervisor Ratings on the Two Employee Groups *

<table>
<thead>
<tr>
<th>Category Label</th>
<th>Technical Skills</th>
<th>Co-Worker</th>
<th>DE</th>
<th>Employer Supervisor Ratings</th>
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<td>Response</td>
<td>Freq</td>
<td>Per Cent</td>
<td>Freq</td>
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<td>27.3</td>
<td>24</td>
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<td>27.3</td>
<td>13</td>
</tr>
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<tr>
<td></td>
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<tr>
<td>j. Following In- structures</td>
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<td>34.1</td>
<td>27</td>
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<tr>
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<td>15</td>
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<tr>
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<td>6.8</td>
<td>2</td>
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<tr>
<td></td>
<td>Poor</td>
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* N = 44 in all subject groups