DOCUMENT RESUME

ED 227 312 CE 035 349

AUTHOR Campbell, Paul B.; And Others
TITLE Job Satisfaction--Antecedents and Associations.
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE Dec 82
CONTRACT 300-78-0032
NOTE 128p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS Academic Aspiration; *Education Work Relationship; Employment Level; High Schools; *Job Satisfaction; *Occupational Aspiration; Occupational Clusters; Organizational Climate; *Outcomes of Education; Self Actualization; *Vocational Education

ABSTRACT

A series of analyses was performed to determine the factors encompassed in the term "job satisfaction" and the effect of high school vocational education courses on job satisfaction. Data were gathered from the National Longitudinal Survey of Labor Market Experience, Youth Cohort, and the high school transcripts of a subsample of this panel. As identified in the data, job satisfaction consists of four relatively independent forms: (1) satisfaction with personal on-the-job development; (2) satisfaction with physical working conditions; (3) satisfaction with job rewards (including pay, job security, and chances for advancement); and (4) satisfaction with human interactions. Separate analyses were conducted with each of these four factors and the study's objectives. Some of the results were that satisfaction with personal on-the-job development was found principally among those working in smaller firms and crafts or in farming and clerical occupations. Satisfaction with working conditions was primarily associated with specific occupations (sales and clerical) and with specific job characteristics (smaller firms and regular work hours.) Satisfaction with job rewards was explained most consistently by occupations, while satisfaction with the human interactions on the job was associated most with the individual's self-esteem and with working in small firms. No resolution was made of the overall question of the influence of vocational education on job satisfaction. Policy implications of the study center on needed support for improved assessment of the effects of vocational education, improved career counseling, increased opportunities for work experience, and support for further research. (KC)

JOB SATISFACTION--ANTECEDENTS AND ASSOCIATIONS

Paul B. Campbell
Donna M. Mertens
Patricia Seitz
Sterling Cox

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

December 1982

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FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education, Job Satisfaction--Antecedents and Associations
Contract Number:	OEC-300-78-0032
Project Number:	051 MH20004
Educational Act Under Which the Funds Were Administered:	Education Amendments of 1976, P.L. 94-482
Source of Contract:	U.S. Department of Education Office of Vocational and Adult Education Washington, D.C. 20202
Contractor:	The National Center for Research in Vocational Education The Ohio State University Columbus, Ohio 43210
Executive Director:	Robert E. Taylor
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FOREWORD

A frequently reported research finding is that high school vocational graduates tend to be highly satisfied with their jobs when compared with students in other curricula. This finding has differing policy implications, depending upon the reasons for the satisfaction. Are vocational graduates more satisfied because they have made a conscious and free choice to do what they want, or because they were encouraged and channeled into accepting lower job aspirations? Some unresolved issues related to these questions are those of the nature of job satisfaction and of its persistence across time. This report discusses a series of analyses aimed at these questions and issues.

This report was prepared primarily for persons who assemble factual information about the effects of vocational education for policymakers to consider in determining future directions and possible modifications of the vocational education system. Such persons include researchers, key staff persons working with policymaking officials, and staff of major commissions and advisory boards.

The combined data from the National Longitudinal Survey of Labor Market Experience, Youth Cohort (NLS Youth), and the high school transcripts of a subsample of the NLS panel were used for analysis. The availability of transcript data permitted the use of more precise and descriptive curriculum classification measures for the high school graduates for whom the comparisons were made.

The National Center is appreciative of the U.S. Department of Labor's research effort, the NLS Youth, being carried out by Michael Borus, Director of the Center for Human Resource Research, The Ohio State University. Dr. Borus was most cooperative in entering into the agreement under which the transcript data were merged with the interview data of the NLS Youth--the data from which this report was prepared. We wish to express our appreciation to him and to two of his staff members, Susan Carpenter and Michael Motto, who assisted in conducting the analyses for this report.

Additionally, the National Center extends its appreciation to the U.S. Department of Education, Office of Vocational and Adult Education, which funded the National Center's effort to collect the transcript data and to conduct extensive analysis of the effects of participation in vocational education.

This project was conducted in the Evaluation and Policy Division of the National Center under the direction of N. L. McCaslin, Associate Director. Many people made significant contributions in the course of its completion. We wish to thank the

project staff--Paul Campbell, Project Director; Donna M. Mertens; Patricia Seitz; and Sterling Cox--for their work in preparing this report.

Robert Quinn, University of Michigan, and Rene Dawis, University of Minnesota, provided helpful criticisms, as did Larry Hotchkiss and Juliet Miller of the National Center. John Gardner provided suggestions and ideas that refined the design of the study. Marta Fisch carried out the merger of the data from the transcripts and interviews to produce a working file that made the analyses possible. The painstaking and thoughtful work of Bernice DeHart produced the typed manuscript and incorporated the many revisions. She was assisted and supported by Deborah Anthony and Sherri Trayser. Editing was ably provided by Field Services staff.

Robert Taylor
Executive Director
National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

Individuals who took vocational education courses in secondary school have frequently reported higher satisfaction with their jobs than those who followed other curricula. In order to understand the contribution of vocational education to this reported satisfaction, and therefore the appropriate emphasis of policy for vocational education, continued study is necessary. This is especially important because some writers have argued that vocational graduates are more satisfied because their aspirations have been depressed by their education, while others have argued that vocational graduates are using their skills and are therefore more satisfied.

The availability of data from the NLS Youth survey, supplemented by the high school transcripts of a subsample of those who had graduated from high school, made possible a refinement of the complex concept of job satisfaction and a more precise definition of the secondary vocational education experience. Although national longitudinal surveys have some limitations for this type of research because of their multipurpose nature, the richness of the data in NLS Youth made this research appear to be well worthwhile with this data base.

The Research Questions

The research was organized around the following set of questions:

- What is the nature of job satisfaction--global or multi-factored?
- What are its correlates, both contemporary and antecedent, and what role does secondary vocational education play among them?
- What role does job satisfaction, and other non-monetary variables, have in relation to hourly rate of pay?
- Does vocational education play a role in sustaining job satisfaction over time?
- What role does job satisfaction have in job stability or its inverse, job mobility?
- If vocational education increases job satisfaction, does that effect appear because vocational education depresses job expectations?
- What are the policy implications of these findings?

The Findings

Job satisfaction, as identified in these data, consists of four relatively independent forms.

They are:

- Satisfaction with personal on-the-job development. This factor included use of skills, acquisition of new skills, and overall satisfaction.
- Satisfaction with physical working conditions. This factor included pleasant surroundings and absence of dangerous or unhealthy conditions.
- Satisfaction with job rewards. This factor included pay, job security, and chances for advancement.
- Satisfaction with human interactions. This factor included relationships with both co-workers and supervisors.

Only the first factor reflected overall satisfaction. All four forms of job satisfaction, being independent, required separate consideration in each of the remaining objectives. When such analyses were conducted, differences in the results were observed.

The correlates of satisfaction with personal on-the-job development were found principally among job characteristics and occupations. Working in smaller firms was associated with greater satisfaction as were more skill-demanding occupations (e.g., managerial, crafts, farming). Vocational education had no observable direct effects on this form of job satisfaction but is likely to influence it through its role in training workers for crafts, farming, clerical, and other occupations associated with higher satisfaction of this form. Because secondary vocational graduates appear more likely to select smaller firms as work places, a possible influence exists here as well. Working in the field where one hopes to be at age thirty-five also increased this form of job satisfaction.

Satisfaction with working conditions was also primarily associated with occupations and with specific job characteristics. As examples, sales and clerical occupations were associated with higher satisfaction and crafts with lower satisfaction. Large firms and unionization were associated with lower satisfaction as well. (It should be noted that crafts, large firms, and unions do not cause unsatisfactory conditions, but rather they are part of the description of the settings where these conditions are perceived to exist.) Concentration in vocational education was associated with higher satisfaction in the 1979 interview data but not in 1980.

Satisfaction with job rewards was explained most consistently by occupation. Interestingly, although this form of satisfaction increased as hourly rate of pay increased, the occupations associated with greater satisfaction with job rewards included several where pay was, on the average, lower than common labor. Among them were farming, sales, and clerical occupations.

Satisfaction with the human interactions on the job was associated most with the individual's self-esteem, although very small firms were also the location of higher satisfaction in this regard. However, this form of satisfaction varied a great deal in ways not explained by these analyses, and therefore they remain unknown. One might speculate that this form of satisfaction is largely a function of the personality of individuals rather than of the work place, but this speculation cannot be tested by the analyses performed for this study.

Hourly rate of pay was higher when satisfaction with job rewards was higher (an unsurprising finding), but also tended to be higher when on-the-job development was more satisfying. It was lower when working conditions were safe, healthy, and pleasant. It also tended to be lower when human interactions were more satisfactory.

No evidence emerged relating vocational education to persistence of job satisfaction. What did emerge was the apparent trade-off that some vocationally trained people were willing to make, and others were not, between the various forms of job satisfaction. Some would accept lower satisfaction with working conditions, job rewards, and human interaction, to work in a satisfactory manner with their skills and acquire new skills. Others would give up the chance to use or develop their skills in order to improve their working conditions or job rewards. The importance of informed choice is clearly emphasized by this finding. People may well decide to trade off one form of job satisfaction for another!

The overall question of the influence of vocational education on persistence of job satisfaction remains unresolved. Perhaps this is because the labor market experience of the NLS Youth has not spanned a sufficient time period to allow possible effects to emerge.

Among the potential consequences of job satisfaction, one that could be analyzed with these data was job stability. The higher the satisfaction with job rewards, the lower the mobility. Also, there was some tendency for lower mobility when personal on-the-job development was more satisfactory. However, there was more mobility when human interactions were more satisfactory. The associations for vocational education were not strong, but could have increased job stability through their indirect effects on satisfaction with personal on-the-job development and the

nonmonetary aspects of job rewards (security, chance for advancement, as contrasted with hourly rate of pay). None of these possible effects were important alone. Only as they were associated with other conditions would an overall practical difference occur.

The evidence did not suggest a depressing effect of vocational education on educational expectations. An opposite effect was more likely. Those students in an academic curriculum at the time of the initial survey were the ones most likely to have downgraded their educational expectations three years later.

For occupational aspirations, no useful explanations emerged. There was an overall downgrading of occupational aspirations across the period, but it was independent of curriculum. The causative variables relating to this change remain unknown and are not reflected in the variables analyzed in this study.

Additional Research Needed

Additional research on the topic of job satisfaction and its particular relationship to vocational education is needed. The meaning of job satisfaction requires additional research to determine its multi-faceted character more precisely. Interviews are needed to determine how individuals are interpreting the rating scales used to assess job satisfaction. For example, do the rating scales share a common meaning or is there much diversity in respondents' interpretations? Further, the dynamics that are operating in a vocational education classroom and in a job setting that influence an individual's level of satisfaction need to be determined. Further research on job satisfaction should be more closely tied to a theoretical framework. Which framework is more appropriate under which conditions? This might shed light on the factors that contribute to job satisfaction and aspirations. The present analyses, particularly of the human interactions and aspirations, accounted for very little of the variance. What does account for it? A theoretical framework might suggest new variables that should be considered and might allow expansion of this investigation to determine the relationship between satisfaction and aspirations.

Policy Implications

Policy implications of the present study center on needed support for improved assessment of the effects of vocational education, improved career counseling, increased opportunities for work experience, and provision of support for further research. Among the specific recommendations for policy development are the following:

- To the Congress:

  The outcome of job satisfaction is most closely associated with conditions in the employment arena and is beyond the direct effects of vocational education. As such a legislated evaluative criteria related to job satisfaction for education and training programs could be inappropriate.

- To the U.S. Department of Education:

  More information on job satisfaction and its consequences is clearly needed. Therefore, the investment of resources in further search for knowledge and understanding about these highly important human issues should be encouraged and supported.

- To counselors and teachers:

  Young people should be given a realistic picture of the occupation they are being trained for, both in terms of job duties as well as in terms of the future that is commonly associated with such a job, including earnings progression, promotions, and career change opportunities. An increase in the availability of work experience is one avenue that can help young people obtain a more realistic view of the occupation for which they are training. Former vocational education students appear to be willing to trade off higher job satisfaction with lower wages and less desirable working conditions. As such, present evaluative studies should make this point when interpreting effects like earnings for these individuals.

CHAPTER 1

BACKGROUND CONSIDERATIONS

Why This Study?

The level of job satisfaction among individuals with different levels of participation in vocational courses raise many interesting questions. A recurring finding in most studies of former vocational education graduates is a high level of job satisfaction (Grasso and Shea 1979; Mertens et al. 1980; Mertens and Gardner 1981; Tabler 1976). The overall satisfaction of former vocational education students is usually as high or higher than that of students from other curricula, and vocational students are often more satisfied with specific aspects of their jobs.

Why should former vocational students demonstrate more job satisfaction? At least two explanations with widely varying policy implications suggest themselves. Critics of vocational education often state that vocational instruction lowers the occupational aspirations and expectations of young people who are destined to hold the less rewarding jobs in society (Grubb and Lazerson 1975). If vocational education does, indeed, have such effects, the higher satisfaction levels found for former vocational students could occur because the former students are satisfied with less.

A contrasting explanation is that vocational preparation enables former students to secure employment that offers a better match between individual skills and job requirements. The evidence indicates that individuals who acquire more intensive and focused occupational preparation are more likely to find employment in the field for which they are trained (Campbell et al. 1981). Does this match between skills and job result in higher levels of satisfaction? This study was undertaken to improve our understanding of the dynamics of the phenomena of job satisfaction.

Organization of the Report

To assure focused and comprehensive analysis, the content of the questions was expanded into a series of objectives, around which the study was organized. They, and related background information, are presented in the remainder of this chapter. A description of the data and the analytic models is presented in chapter 2. Chapter 3 presents the findings of the study, including the correlates of job satisfaction with current employment, the relationship of nonmonetary elements with earnings, the persistence of satisfaction over time, and the job stability of

vocational graduates. The final chapter (chapter 4) includes a discussion of conclusions and recommendations.

Objectives

Returning to the content of this chapter, the objectives which should be attained to provide adequate understanding of the interrelationships surrounding job satisfaction are as follows:

- To identify correlates of satisfaction with current employment
- To determine the relationship of job satisfaction and other nonmonetary elements with earnings
- To determine whether job satisfaction persists over time for vocational students in training-related employment as compared to students not so classified
- To determine the role of job satisfaction in career track or job stability for vocational students relative to others not so classified
- To identify policy implications and alternatives relating to the interaction of job stability and job satisfaction with curriculum and the vocational delivery system

These objectives were addressed by analyzing data taken from the combined National Longitudinal Survey of Youth Labor Market Experience (NLS Youth) and the high school transcripts of a subsample of the NLS panel. For a portion of the NLS Youth cohort, the longitudinal nature of the data enabled more precise estimates of the influence of vocational participation by permitting comparison of measures of occupational aspirations obtained prior and subsequent to participation in vocational courses.

Definition of Job Satisfaction

In a discussion of the problem of defining job satisfaction, Carrol (1969) noted that each researcher works on a different aspect and defines the variables in terms of concepts with which they can most easily work. The different semantics, approaches, and conceptual ideas make it difficult to compare the results of various studies. She concluded that future research will depend to a great extent on developing a commonly accepted definition.

The most recent definitions of job satisfaction center on the concepts of values and need fulfillment. Wanous (1980)

defined job satisfaction as a match between a person's needs and the reinforcement received from work performed in that organization. Andrisani et al. (1978) wrote that job satisfaction is simply a function of the degree to which a job provides the worker with positively valued outcomes. Earlier, Locke (1976) had suggested, "Job satisfaction may be defined . . . as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p. 1300). He further expanded this definition as follows: "Job satisfaction results from the appraisal of one's job as attaining or allowing the attainment of one's important job values, providing these values are congruent with or help to fulfill one's basic needs" (p. 1319). Locke's definition has been influential in subsequent research on job satisfaction.

Measurement of Job Satisfaction

Just as controversy surrounds the definition of job satisfaction, its measurement is also fraught with difficulty. Freeman (1977) noted that the principal problem in interpreting responses to job satisfaction measures is that the responses are dependent upon not only the objective circumstances in which individuals find themselves, but also on their psychological state, and thus on their aspirations, willingness to voice discontent, the hypothetical alternatives to which they compare the current job, and so forth. Job satisfaction reflects both objective and subjective factors, and therefore is quite complex and requires sophisticated and careful analysis.

Locke (1976) categorized the following five types of job satisfaction measurement techniques: (1) rating scales, (2) overt behavior, (3) action tendency scales, (4) interviews, and (5) the critical incident strategy. These techniques are discussed in more detail next.

Rating Scales

The most commonly used technique is the rating scale that asks for a direct verbal or written self-report of job satisfaction (Locke 1976). The various question formats have included Likert scales, Thurstone-scales, "faces," and adjectives with yes, no, or undecided options. The Cornell Job Description Index (JDI) is one example of a measurement instrument that includes five scales pertaining to work, pay, promotions, coworkers, and supervisors (Smith, Kendall, and Hulin 1969). Each scale contains nine or eighteen items.

The distinction between global or multi-factor measures of job satisfaction raises a controversy. Hulin and Smith (1965) believed that a global measure was unsatisfactory because job

satisfaction is made up of a number of factors. Marconi (1973) noted that multi-factor studies assume that workers may be satisfied with some parts of their jobs and discontented with other aspects of them.

Several national surveys used single global measures of job satisfaction; these include the General Social Surveys (Weaver 1980) and the National Longitudinal Surveys of Labor Market Experience--Older Men and Women (Andrisani et al. 1978). Dawis and Lofquist (1981) described Hoppock's Job Satisfaction Blank as an overall satisfaction measure that is based on four items.

They also point out that in contrast, the Minnesota Satisfaction Questionnaire consists of 100 items designed to assess satisfaction with many aspects of the work environment. Kerr's Tear Ballot for Industry uses eleven components of job happiness and welfare to arrive at a job satisfaction score (Dawis and Lofquist 1981). Moch (1980) used a three-item general satisfaction scale, and also included scales to measure the importance of extrinsic considerations (e.g., pay), intrinsic considerations (e.g., chance to do something important), and social considerations (e.g., friendliness of coworkers) at work.

Locke (1976) offered the following criticisms of the use of rating scales to measure job satisfaction:

1. Some scales include items that are descriptive in nature (e.g., "job keeps me on my feet") and items that are evaluative in nature (e.g., "boring," "satisfying"). A unidimensional scale does not therefore exist, and total scores are therefore inappropriate.

2. The assumption of perfect (or at least reasonably good) self-insight requires both the capacity and willingness to introspect.

3. The assumption of a common core of meaning across individuals in interpreting the scales or items.

Dawis and Lofquist (1981) pointed out another problem caused by different wordings of questions about job satisfaction. In general, approximately 80 percent of all workers expressed overall satisfaction with their jobs. Yet, when workers were asked whether or not they would change jobs if given the opportunity, about 50 percent said they would.

Action Tendency Scales

An action tendency scale asks individuals to report the action tendencies (what they might do under altered circumstances) that they experience in relation to their jobs or the

component elements of the jobs (Locke 1976). Action tendency scales suffer from many of the same limitations as rating scales, in that they require introspection by the respondent and are open to multiple interpretations.

Interviews

Locke (1976) noted that interviews were seldom used in job satisfaction research, and recommended their use for the establishment of logical validity of the findings. He believed that interviews could be used to clarify contradictions in the response and to determine the subject's interpretation of the questions. Freeman (1977) noted that detailed case studies linked job satisfaction to a host of very specific aspects of the work place, such as mode of supervision and physical work conditions. Neither author acknowledged the difficulties that are associated with aggregating, analyzing, or interpreting such data for large samples.

Critical Incident Strategy

The critical incident strategy asks the subject to describe a specific incident that has been either satisfying or dissatisfying (Locke 1976). It was the principal strategy used by Herzberg (1966). It also requires introspection and may suffer from selective memory.

Summary of Job Satisfaction Measurement Techniques

Each type of measurement technique has advantages and disadvantages. Marconi (1973) reviewed twenty-eight studies of job satisfaction and concluded that the importance of its antecedents and consequences was determined by the definition, measurement technique, and analysis procedure. For example, Marconi cited a number of studies that reported differences in satisfaction levels between blue- and white-collar workers. However, when a study controlled for age, these differences disappeared for workers under age thirty and over age forty-four. Marconi cited numerous examples of such conflicting findings. Specific discussion of these findings is presented in the subsequent discussion of the antecedents and consequences of job satisfaction.

Antecedents

The absence of a consistent definition of job satisfaction constitutes one problem with research in this area. In addition, much of the job satisfaction research has been atheoretical. However, at least five distinct approaches are described in the

literature (Lawler 1973; Locke 1976; Andrisani et al. 1978). The following discussion includes a brief review of the five approaches, which are (1) fulfillment theory, (2) discrepancy theory, (3) equity theory, (4) the two-factor theory, and (5) an integration of the equity and discrepancy theories.

Fulfillment Theory

The origin of the fulfillment theory is most frequently associated with Schaffer (1953), who postulated a relationship between need satisfaction and job satisfaction. Fulfillment theory is based upon the assumption that job satisfaction is a function of the degree to which a job provides the worker with outcomes that are valued by that worker.

The relative importance to workers of their job outcomes or goals is called valence (Vroom 1964). Further, satisfaction is the product of the perceptions held by workers of their jobs' effectiveness in producing those outcomes of positive valence. Therefore, workers will be satisfied if they perceive their jobs as producing outcomes of positive valence.

To measure employees' satisfaction, adherents of the fulfillment theory ask their subjects how much of a given outcome they receive. However, other research indicates that satisfaction is not only a function of how much fulfillment people receive, but also of how much they feel they should and/or want to receive (Locke 1969). Locke noted that the fulfillment approach fails to take into account personality variables that differentially influence people.

Discrepancy Theory

Discrepancy theory represents an attempt on the part of its advocates to take personality differences into account. It suggests that satisfaction is determined by the difference between the work outcomes the workers actually receive and some other outcome level (Lawler 1973). The other outcome level may be one desired, expected, or perceived by workers to be justly due to them. Andrisani and his colleagues (1978) noted that workers' preferred outcomes could, and probably often do, vary from the outcomes they desire or expect. Discrepancy theory does not provide a clear definition of the ideal outcome to be considered. However, the discrepancy between the real and expected levels of outcome chosen for comparison provides an index of satisfaction.

The discrepancy approaches of Katzell (1964) and Locke (1968, 1969) are probably the two that were the most highly developed. Katzell emphasized the difference between actual amount of reward and some desired amount of that outcome.

Katzell's approach suggests (1) that the more a worker wants of an outcome, the more dissatisfied that worker will be with a given discrepancy, and (2) that getting more than the desired amount produces less satisfaction than getting the desired amount. The underlying assumptions of Katzell's position have not been empirically tested.

Locke (1969) differentiated between perceived discrepancy and actual discrepancy. Job satisfaction and dissatisfaction are a function of the perceived relationship between what people want from their jobs and what they perceive their jobs to be offering. Implicit in Locke's approach is the assumption that dissatisfaction increases as wants exceed what is perceived to be received.

Porter's (1961) measure of job satisfaction was slightly different from Locke's. Porter represented satisfaction as the difference between how much of an outcome there should be for a job and how much of that outcome is actually received. What a worker feels that the outcome should be is, therefore, given consideration over the amount that the worker wants. Lawler (1973) noted that Porter's approach has been the most widely used.

It is possible that, on occasion, workers receive more of an outcome than they think they should receive, or want to receive. Most discrepancy approaches recognize this fact, but do not state clearly how the feelings resulting from "over-reward" relate to dissatisfaction due to "under-reward." Discrepancy theory has yet to provide answers to questions relating to whether or not both types of dissatisfaction are produced in the same way, have the same results, or contribute to overall job satisfaction (Lawler 1973).

Equity Theory

According to Adams (1963, 1965), job satisfaction exists when workers perceive that there is equity in the ratio of what they put into a job and what is received from the job. Workers' perceptions of a fair or equitable ratio are said to depend upon the ratio of inputs to rewards for "significant others" to whom the workers compare themselves. Within the framework of the equity approach, "over-reward" leads to feelings of guilt and "under-reward" to feelings of unfair treatment.

A strength of the equity approach lies in its explicit emphasis on the role of "others" in the development of workers' feelings about what their outcomes or rewards should be (Lawler 1973). Such an explicit emphasis is not evident in any of the approaches discussed earlier.

Two-Factor Theory

The two-factor approach originates with Herzberg and his associates (Herzberg 1966; Herzberg, Mausner, and Snyderman 1959; Herzberg et al. 1957). Their research methodology is known as the Critical Incident Technique, and establishes that job satisfaction and dissatisfaction are not the extremes of a continuum (with a state of neutrality somewhere in the middle). Rather, two independent continua exist--one running from satisfaction to neutral, and the other from dissatisfaction to neutral. "Intrinsic" factors or motivators lead to job satisfaction, and "extrinsic" or "hygiene" factors to job dissatisfaction. Extrinsic rewards include company policy and administration, interpersonal relations, working conditions, and supervision (Bowditch and Buono 1982). On the other hand, intrinsic rewards are the more intangible outcomes, such as growth on the job, esteem, or the interest or curiosity that the job offers. The intrinsic rewards relate to the nature of the work (how I feel about myself doing this), whereas extrinsic rewards relate to the context and material aspects of the work itself (what this work place is like; I get enough money doing this).

Lending support to the two-factor theory, Bowditch and Buono (1982) noted that the heaping of extrinsic rewards (such as money and benefits) on workers whose work is already intrinsically rewarding is redundant, and does not necessarily increase the workers' motivation, performance, or satisfaction. Friedlander (1965) affirmed that the following are among the most potent work satisfiers: achievement, work requiring the best abilities of workers, and the performance of challenging job assignments.

Lawler (1973) noted that clear-cut support has not been provided by studies designed to test the two-factor theory. This does not mean that a total rejection has occurred, but controversy has been fueled. The findings of Herzberg and his associates have been criticized primarily because they are viewed as being tied to a single methodology--the Critical Incident Technique. Dunette, Campbell, and Hakel (1967) noted that since people quite naturally tend to attribute good memories to feelings of internal growth and success, and to externalize bad memories (thus associating them with feelings of unfairness), results are determined by the methodology (Carrol 1969).

Marconi (1973) noted that work factors are not simply additive in influencing job satisfaction, and they cannot be placed in two exclusive categories, one affecting satisfaction and the other dissatisfaction. Lindsay, Marks, and Gorlow (1967) found in their research of determinants of job satisfaction, that "intrinsic motivators" accounted for 57 percent of the variance and that "hygiene factors" accounted for another 7 percent. Therefore, both "hygiene factors" and "intrinsic motivators" caused satisfaction and dissatisfaction. One aspect of the

discrepancy theory that Lawler (1973) found particularly curious was the suggestion that a person can be very satisfied and very dissatisfied at the same time.

Equity/Discrepancy Integration Theory

Lawler (1973) built a model of job satisfaction by integrating the equity and discrepancy approaches. Lawler's model provides an outline of the conditions that lead to worker satisfaction. The theory assumes that the same psychological processes operate to determine satisfaction, with a range of such job factors as pay, supervision, and satisfaction with the work itself. Lawler noted that when satisfaction is based upon the discrepancy between how much is wanted and how much is received, the "want" aspect of the equation is aspirational, and thus removes job satisfaction from the context of the job and the situation. The question of how much there should be is a statement of what is appropriate in a particular situation--in this case, the job situation. Wanous and Lawler (1972) reported that respondents consistently indicate that they want more of an outcome than the amount they think they should receive. In Lawler's view, the outcome level that employees think they should receive from their job, rather than what they want, is the appropriate measure to be used when the satisfaction of workers is considered.

Lawler's model shows that workers' views of the amount of an outcome they actually receive are influenced by factors other than the objective amount of the outcome. As discussed in the equity approach, one such factor is their perception of the amount of the outcomes received by their referent others. Another such factor is job inputs, which include all of the skills, abilities, and training that workers bring to their jobs. Job demands are a final factor which includes difficulty, time required, and amount of responsibility.

Correlates of Job Satisfaction

Marconi (1973) noted that disagreements exist about the role of specific job-related factors in work satisfaction. There is even less consensus about the role of demographic variables. Despite this fact, this section offers a brief review of the literature on demographic correlates of job satisfaction, in order to provide a link between previous research and the work reported herein. In that sense, it provides a context for understanding the results of the present study.

Race and Sex

Job satisfaction research has generally reported lower levels of satisfaction for black workers than for whites (Andrisani et al. 1978; Milutinovich 1977; O'Reilly and Roberts 1973; Slocum and Strawser 1972; Smith, Smith, and Rollo 1974; U.S. Department of Labor 1979). Based on a review of research conducted between 1972 and 1978, Weaver (1980) also reported lower levels of satisfaction among black workers than among white workers. In comparison, Moch (1980) reported higher levels of job satisfaction for Mexican Americans than for whites.

Andrisani and his colleagues (1978) noted that it is hardly surprising that black workers are less likely than their white counterparts to be highly satisfied with their jobs, given the vast racial disparities in employment experiences. Minorities, such as women and youth, tend to be segregated into jobs that are less satisfying and often experience wage discrimination even when they are not occupationally segregated.

Some studies reported little or no differences in satisfaction among members of different races (Cavin and Ewen 1974; Jones et al. 1977; Katzell, Ewen, and Korman 1974). These studies implemented controls on variables such as job level (Gavin and Ewen 1974; Jones et al. 1977), differences in pay, sex, occupational prestige, supervisory position, and work autonomy (Weaver 1977). Moch (1980) saw evidence in these studies suggesting that, given the use of proper controls, the race of workers may not be related to job satisfaction.

Job satisfaction literature has also addressed sex as a factor that influences job satisfaction (Beer 1964; Friedlander 1965; Herzberg, Mausner, Snyderman 1959; Hulin and Smith 1964; Levitin, Quinn, and Staines 1973; Lindsay 1967; Rachman and Kemp 1964; Seashore and Barnowe 1972). These studies reported that females were more likely to experience higher levels of satisfaction than were males (Andrisani et al. 1978; U.S. Department of Labor 1979).

Andrisani and his colleagues (1978) pointed out that workers' perceptions of what constitutes a satisfying job may be colored by the circumstances in which they find themselves, as well as by their attitudes toward the market value of work. On this basis, Andrisani and his colleagues explained the phenomenon of higher satisfaction among female workers. Due to the potential for conflict between the pursuit of careers and the meeting of marital and parental obligations at home, females may settle for jobs that do not fully utilize their skills in order to keep outside work from interfering with their family responsibilities. Thus, their expectations of their jobs are relatively low and, in that sense, more easily met.

Age

Positive associations between age and job satisfaction were reported in numerous national surveys (Andrisani et al. 1978; Quinn, Staines, and McCollough 1974; Weaver 1980) and in organizational studies (Gibson and Klein 1970; Hulin and Smith 1965). Friedlander (1965) reported that age was not only correlated with general satisfaction, but accounted for differences regarding job-related determinants. Younger workers stressed the importance of such intrinsic work aspects as the utilization of their skills and the challenge of the work. For older workers, extrinsic aspects, such as working conditions and security, were more important.

Herzberg et al. (1957) reported a U-shaped function between age and job satisfaction. Hulin and Smith (1965) noted that seventeen out of twenty-three studies of job satisfaction using samples from varying occupational levels suggested that morale (1) is high when workers start their first job, (2) declines during the next few years, and (3) rises in the late twenties or thirties and continues through the remainder of the career. Hulin and Smith cautioned against assuming that there is a relationship between age and job satisfaction, however, when age and tenure have been operating simultaneously to produce the U-shaped function. Before conclusions can be made concerning age, the effects of tenure much be considered.

Educational Level

When the relationship between educational level and job satisfaction was tested, while controlling for occupational level, unskilled and semiskilled workers with more than a high school diploma showed a greater tendency to be dissatisfied with their jobs than did persons with lower levels of education (Parnes 1966; Sheppard and Herrick 1972). Thus, education appears to be related to job satisfaction and, as education level increases, job satisfaction subsequently increases with the prestige of the job held.

Quinn and Baldi de Mandilovitch (1977) contended, however, that the relationship between education and job satisfaction has not been sufficiently well demonstrated to qualify as an unquestionable assumption. They pointed to the need to establish, in a much more conclusive manner, the magnitude of the relationship, as well as its form and generality. Furthermore, they pointed out that social and psychological processes that may link education and job satisfaction are not yet clearly understood.

Occupational Level

When occupations were divided into the blue-collar/white-collar categories, blue-collar workers tended to be more dissatisfied with their work than white-collar workers (Kornhauser 1965; Parnes 1966; Robinson 1969). Job satisfaction generally declines with occupational level (Vroom 1964); however, specific occupational differences have been reported. For example, farmers experience higher levels of satisfaction than clerical personnel (Gurin, Veroff, and Feld 1960).

Marconi (1973) pointed to the mediating influence on job satisfaction of such intervening variables as workers' original expectations and comparisons between their jobs and others' in the same field. According to Sheppard and Herrick (1972), the relationship between occupational level and job satisfaction ceased to exist for workers who were less than thirty years old and over forty-four years old, when the study controlled for age. Significant differences did exist, however, between blue-collar and white-collar workers whose ages ranged from thrity to fourty-four years.

Consequences of Job Satisfaction

Previous sections of this report treat job satisfaction as a dependent variable. Investigation of job satisfaction as an independent variable emphasizes the importance of better understanding this concept. While many consequences of job satisfaction have been addressed by previous research, no causality can be assumed between satisfaction and its supposed consequences (Marconi 1973). The consequences are categorized here as (1) work-related, (2) physical and mental health, (3) labor market experiences, (4) social costs, and (5) other attitudes.

Work-related Consequences

Turnover rates. Turnover rates have been the most consistent measure to be associated with job satisfaction (Atchison and Lofferts 1972; Brayfield and Crockett 1955; Dawis and Lofquist 1981; Herzberg et al. 1957; Kraut 1970; Locke 1976; Schuh 1967; Taylor and Weiss 1972; Vroom 1964; Waters and Roach 1971, 1973). Dawis and Lofquist (1981) and Andrisani et al. (1978) pointed out the importance of turnover to work organizations in terms of costs for recruitment, selection, training of replacements, and losses due to interrupted production.

The U.S. Department of Labor (1979) reported that highly dissatisfied workers were from 14 to 42 percentage points more likely to change employers than were highly satisfied workers in

comparable positions. This relationship was more pronounced among younger than older workers and among blacks than whites.

Parnes, Nestel and Andrisani (1972) confirmed the relationship between job satisfaction and turnover for men, and examined the effect of job tenure on this consequence. Their findings suggest that a lack of job enthusiasm can cause men who have relatively little tenure to seek other alternatives. However, once substantial seniority (i.e., five years or more) is achieved, the absence of strong positive feelings toward the job is not sufficient to increase the probability of voluntary movement. This interpretation was not supported for black men, among whom the relationships are not as clear-cut.

Wanous (1980) viewed low satisfaction as a result of the mismatch between workers' needs and the organization's capacity to satisfy those needs. Low job satisfaction may be followed either by the workers' quitting the organization or by decreasing their organizational commitment.

Hull, Friedman, and Rogers (1982) used turnover rate as a measure of satisfaction to examine alienation in the work place. They defined alienation as powerlessness, meaninglessness, social isolation, and self-estrangement. They concluded that the effect of technology on alienation depends on the extent to which machinery is automatic and on how the machinery is arranged in the production system. Turnover increased only with certain specific conditions of work, such as repetitive motions and lack of control over pacing.

Marconi (1973) noted that a significant drawback of previous studies is their exclusion of other variables that may influence voluntary job turnover, such as general economic conditions and personality factors.

Absenteeism. Several researchers reported a significant relationship between absenteeism and job satisfaction (Brayfield and Crockett 1955; Dawis and Lofquist 1981; Herzberg et al. 1957; Locke 1976; Vroom 1964), although this relationship was not as consistently reported as that for tenure and satisfaction (Nicholson, Brown, and Chadwick-Jones 1979; Porter and Steers 1973; Wanous 1980). Wanous (1980) suggested that the weaker evidence for absenteeism may be explained partially by the fact that fewer studies have examined absenteeism. In addition, absenteeism has been measured two ways; that is, as (1) the number of days absent over a specified period of time, and (2) as the number of occasions of absence (e.g., four days in a row equals one occasion). Marconi (1973) noted that results of studies that used frequencies found significant relationships between job satisfaction and absenteeism, while those that used raw numbers did not.

Performance. There is no consistently strong relationship, either positive or negative, between job satisfaction and performance (Brayfield and Crockett 1955; Bowditch and Buono 1982; Dawis and Lofquist 1981; Herzberg et al. 1957; Locke 1976; Vroom 1964; Wanous 1980). Despite the fact that there is no trend one way or another, satisfaction and performance may be linked in a particular organization (Wanous 1974), or in a particular situation (Cherrington, Reitz, and Scott 1971). Argyris (1964) identified instances where low satisfaction resulted in poor performance as a way of retaliating against the organization (i.e., sabotage).

Bowditch and Buono (1982) raised a question about the direction of causality of the relationship between satisfaction and performance. They hypothesized that as high performance is rewarded, this reward leads to higher satisfaction.

Kazanas (1978) found a relationship among the factors of meaning of work, value of work, job satisfaction, and job productivity for vocational education graduates, although the strength of this finding was relatively low. One conclusion was that vocational graduates who perceived work as having intrinsic value may have been more satisfied with work and may have been more productive. In their study of job satisfaction and productivity, Kazanas and Gregor (1977) concluded that vocational educators should be concerned with their students' work values because of the significance of those values for job satisfaction and productivity.

Robinson (1969) suggested that methodological differences may account for the conflicting findings between job performance and satisfaction. Robinson's careful examination of pertinent studies pointed to a significant relationship between high satisfaction and high production, but low satisfaction rates did not necessarily indicate low production rates.

Lawler (1973) pointed to two possible ways in which job satisfaction may affect production: (1) by raising the quality of products or (2) by raising production rates. In separating these two aspects of production, Lawler found that when work satisfaction was high the quality of work products was also high, but that no significant relationship existed between job satisfaction and the quantity of products produced.

Little research by social psychologists or sociologists has been conducted on testing other conditions that might affect the relationship between work satisfaction and performance (Marconi 1973). There was some indication in recent studies that as assembly line jobs were restructured to enrich job content and job interest, production costs rose, but absenteeism and turnover rates declined. It is too early, however, to measure any lasting effects of "job enrichment" on production.

Other work-related consequences. Four other aspects of work have been investigated as possible consequences of job satisfaction--(1) accidents, (2) tardiness, (3) grievances, and (4) variability of output. Only a small number of studies have tested the relationship between accidents and satisfaction (Marconi 1973). Vroom (1964) and Robinson (1969) found some significant correlations, but the direction of the relationship was questionable. Dissatisfaction could have been a result of a high accident rate, rather than the reverse.

A small number of studies reported a negative relationship between satisfaction and tardiness (Brayfield and Crockett 1955; Dawis and Lofquist 1981; Porter and Steers 1973). High grievance rates were associated with low job satisfaction (Fleishman and Harris 1962). As a result of lapses in attention, an increased degree of boredom decreased the magnitude of output among production workers (Wyatt, Fraser, and Stock 1929).

Physical and Mental Health

Physical health. Locke (1976) and Dawis and Lofquist (1981) summarized the results of numerous studies that examined the relationship between job satisfaction and physical health and longevity. Burke (1969/1970) reported significant correlations between job satisfaction and such subjectively reported physical symptoms as fatigue, shortness of breath, headache, sweating, and ill health. Herzberg, Mausner, and Snyderman (1959) reported that dissatisfied workers complained more of headaches, loss of appetite, indigestion, and nausea. Chadwick-Jones (1969) found that steelworkers on highly automated and subjectively boring jobs complained of extreme fatigue.

As a result of a one-hour laboratory experiment, Sales (1969) found a significant negative relationship between subjects' enjoyment of a task and changes in their level of serum cholesterol (a possible precursor of coronary heart disease) during the work period. Sales and House (1971) reported a -.83 correlation between job satisfaction and rate of mortality from arteriosclerotic heart disease. Palmore (1969) reported that job satisfaction was the single best predictor of longevity (i.e., observed years of survival after a physical exam, divided by expected years of survival based on actuarial tables). An extensive review of the medical-psychological literature by Jenkins (1971) revealed numerous studies that reported associations between coronary disease and such job complaints as boredom, feeling ill at ease, and interpersonal conflict.

Mental health. Locke (1976) and Dawis and Lofquist (1981) also reviewed research concerning the relationship between job satisfaction and mental health. Job satisfaction was found to correlate with indices of mental health (Special Task Force

1973). Hoppock (1935) reported that higher job satisfaction for a group of teachers seemed to be associated with better mental health and better human relationships.

Kornhauser (1965) developed an index of mental health from six component indices: (1) anxiety and tension, (2) self-esteem, (3) hostility, (4) sociability, (5) life satisfaction, and (6) personal morale. Kornhauser reported consistent relationships between satisfaction and the total mental health index among three levels of blue-collar workers. The strongest relationship was with "chance to use abilities."

Labor Market Experiences

Evidence strongly suggests that job dissatisfaction imposes considerable costs on workers in terms of increased unemployment, decreased labor force participation, and decreased growth in annual earnings and occupational attainment (Andrisani et al. 1978; U.S. Department of Labor 1979). However, the U.S. Department of Labor report noted that dissatisfied black workers as compared to satisfied black workers were an exception. Workers in the former group experienced greater occupational advancement, largely as a result of their greater tendency to change employers.

Social Costs

The social costs imposed by low job satisfaction are of particular interest to policymakers. Because dissatisfied workers experience longer spells of unemployment, they are more likely to draw upon unemployment insurance and welfare (U.S. Department of Labor 1979). The factors creating job dissatisfaction probably contribute indirectly to the overall costs of social programs at the same time that they deprive many workers of the opportunity to work at more productive and satisfying jobs.

Other Attitudes

Locke (1976) reviewed four studies that dealt with attitudes toward life, family, and self-confidence. Significant positive correlation between attitudes on the job and those toward life were reported by Kornhauser (1965), Iris and Barrett (1972), and Weitz (1952). Kornhauser (1965) also reported a positive relationship between job satisfaction and family attitudes. Finally, Herzberg, Mausner, and Snyderman (1959) reported that satisfying job experiences increase self-confidence.

Implications for Vocational Education

Given the importance of career choice to individual well-being and identity, the economic well-being of the employing organization, and the social costs to society, it follows that students should be knowledgeable about their individual work-personality characteristics, the characteristics of work and training environments, the likelihood of their adjustment to work and training in specific environments, and the process of continued adjustment to work (Dawis and Lofquist 1981). These are likely components of job satisfaction, which may be explored or developed in the process of vocational education. Such knowledge, which may help guide students to make the most meaningful choices for their careers, can be generated and communicated by systematic vocational assessment, guidance, and education. Vocational educators face a difficult dilemma here, the balance between raising unrealizable expectations and discouraging realistic aspirations.

Summary of Literature on Job Satisfaction

Job satisfaction can be defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience" (Locke 1976, p. 1300). Measurement of job satisfaction is difficult due to the complex nature of the construct. Typical methods of measurement include rating scales, overt behavior, action tendency scales, interviews, and the critical incident strategy. Despite its weaknesses, the rating scale is most commonly used.

Five theoretical approaches have been described to explain job satisfaction: fulfillment theory, discrepancy theory, equity theory, the two-factor theory, and an integration of the equity and discrepancy theory. Fulfillment theory is based on the assumption that job satisfaction is a function of the degree to which a job provides workers with outcomes that are valued by those workers. The basic idea of the discrepancy theory is that satisfaction is determined by the difference between the work outcomes workers actually receive and some other outcome level. Equity theory holds that job satisfaction exists when workers perceive that there is equity in the ratio of what they put into a job and what is received from the job. The two-factor theory suggests that job satisfaction is caused by a different set of factors than dissatisfaction. In the equity/discrepancy integration theory, job satisfaction involves a comparison between what workers actually experience and what they think they should experience (rather than what they want).

Research concerning demographic influences on job satisfaction has yielded mixed results. Generally, whites express greater satisfaction than blacks, and females express greater

satisfaction than males. The age and job satisfaction relationship appears to be a U-shaped function, with high initial satisfaction followed by a decline, with a subsequent increase as workers reach middle age. A consistent relationship has not been reported between education level and job satisfaction. Generally, white-collar workers tend to be more satisfied than blue-collar workers. For all of the demographic variables, differential results are reported when other variables are controlled or when specific job situations are studied.

The most consistently reported consequence of job dissatisfaction is an increase in turnover rates. Although not as consistently reported, absenteeism may also be related to job dissatisfaction. No consistent relationship has been reported with performance, accidents, tardiness, or grievance rates. A positive relationship appears to exist between job satisfaction and physical and mental health. Increased job dissatisfaction is associated with increased unemployment and, thus, with increased use of unemployment insurance and welfare (except for blacks). Job satisfaction is clearly a complex concept that is influenced by--and influences--numerous other variables. Investigation of this issue demands a sophisticated and carefully designed approach.

CHAPTER 2

THE ANALYTIC MODEL AND THE DATA

Although a number of attempts have been made to develop an adequate and, therefore generally acceptable theory of job satisfaction, the literature review in chapter 1 reveals that no such model is currently available. The primary approaches have dealt with either within-person psychological needs and their satisfaction, or job-related needs and their satisfaction, or with a combination of these two areas. Obviously, there is considerable overlap among these approaches. It is also clear that job satisfaction is a complex, multidimensional concept.

The focus of this study is on utilizing a recently collected data base to examine the finding, reported by a number of researchers (Grasso and Shea 1979; Mertens et al. 1980; Mertens and Gardner 1981; Tabler 1976), that the graduates of secondary vocational education programs are more satisfied with their jobs than graduates of other curricula. In addition, the study seeks to examine the antecedents of this satisfaction phenomenon. A simplified diagram of the possible network of relationships is presented in figure 1.

The relationships examined in this study specifically concern differences in job satisfaction as a function of vocational or other education, while holding constant (to the extent possible) internal and external personal characteristics, as well as such variables as levels of education, occupation, and job characteristics. Thus, the models that are represented in the equations used in the analyses deal with that portion of the network of relationships that includes the education and job satisfaction portion of the diagram. The data used for these analyses are those available in the National Longitudinal Survey of Youth Labor Market Experience (NLS Youth) and the high school transcripts of a subsample of the NLS youth.

Description of the NLS Youth Cohort

The 12,686 persons included in the NLS Youth sample were selected by a household screening process in the fall of 1978; the New Youth Cohort represents a national probability sample of youth who were between the ages of fourteen and twenty-one when originally selected. The sample was drawn in three stages: (1) a cross-sectional sample; (2) a supplemental sample of blacks, Hispanics, and economically disadvantaged whites; and (3) a sample of young persons serving in the military. Both the cross-sectional and supplemental samples were stratified by sex in order to obtain relatively equal proportions of men and women. Because blacks, Hispanics, and economically disadvantaged whites

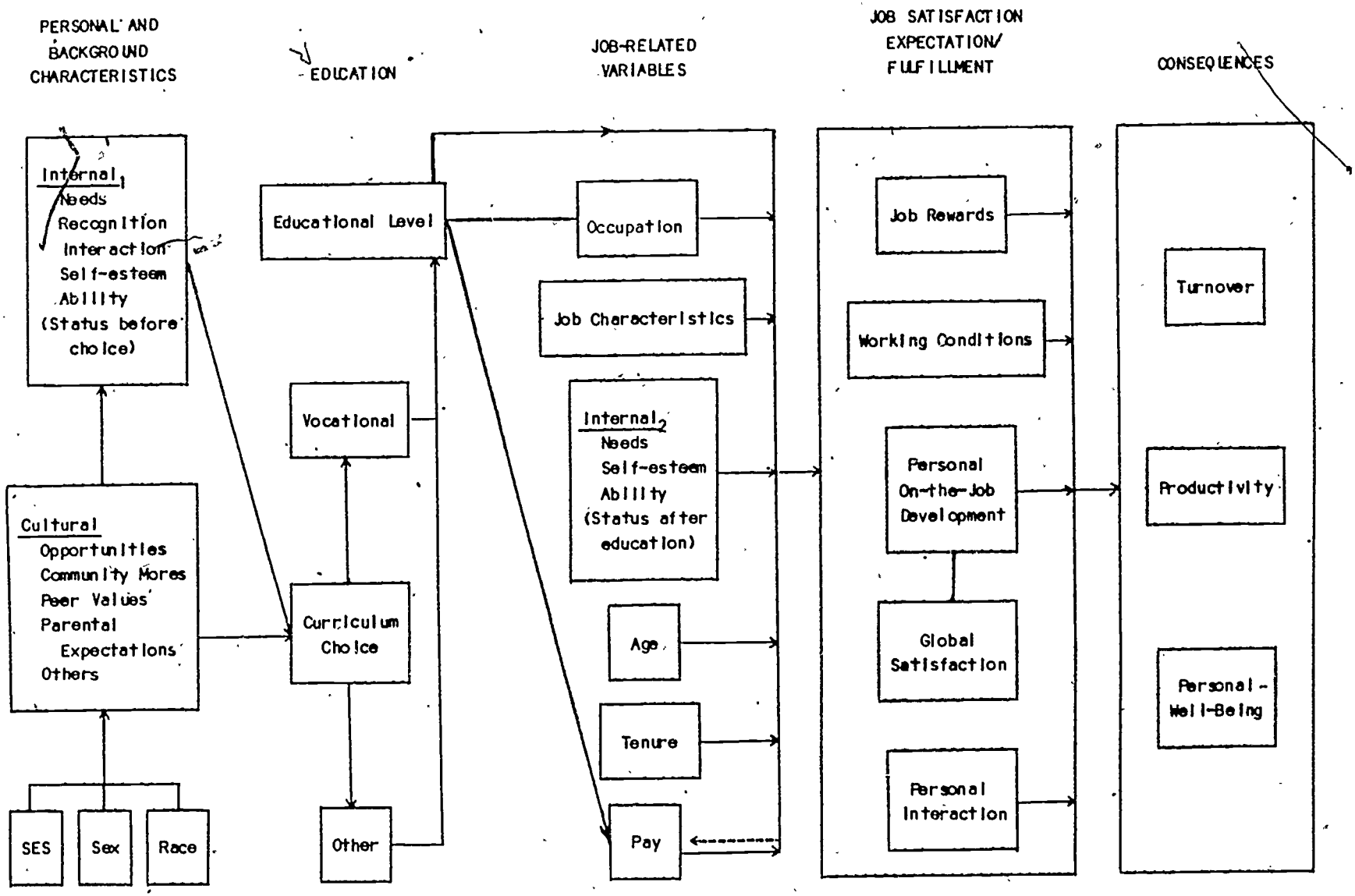

Figure 1. Factors related to job satisfaction and its consequences

were purposefully overrepresented in the NLS Youth sample, a weighting procedure was developed to permit more accurate estimates of these various combinations of the youth population.* Approximately 2 percent of the NLS respondents are Native Americans or of Asian or Pacific Island descent; these minority members are included with whites in this study.

Extensive background information about family, schooling, work history, and training was gathered for all the respondents in the NLS Youth Survey when they were first interviewed early in 1979. In addition, data on current educational and labor market activities were obtained. Follow-up interviews were conducted in 1980, 1981, and 1982. Follow-up interviews are scheduled with the participants in the New Youth Cohort through 1984.

NLS Youth Transcript Collection Effort

The transcript collection effort was initiated through a subcontract let by the National Center for Research in Vocational Education to the National Opinion Research Center (NORC) in order to secure and code the transcripts of the NLS Youth respondents. The first round of transcripts was collected in 1980; the target sample consisted of youth who were seventeen years and older at the time of the 1979 interview. Transcripts were obtained in 1981 for NLS respondents who were fifteen and sixteen years old at the time of the first interview. Respondents excluded from both collection efforts were those in the military sample and those who attended foreign high schools. If a student had transferred and the original school's transcript was not complete, extensive efforts were made to locate and contact the new school to obtain the student's record.

The coded information, if available from the individual transcripts, included: (1) days absent, grades nine through twelve; (2) academic rank in class; and (3) math and verbal scores for aptitude tests (Preliminary Scholastic Aptitude Test, Scholastic Aptitude Test, American College Test). Course information included the specific course taken, the grade (or year) in which the course was taken, the letter grade received, and the credit received for the course.

Each course credit was converted to a common scale, the Carnegie credit unit, at the time of coding. This system assigns 1.0 credit to a standard full-year course, or one course taken one hour a day for 180 days. The Carnegie credit unit system

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*For a full description of the sampling and weighting procedures used in the survey and a descriptive analysis of the first year's data, see Borus et al. (1980).

provides a method that is sensitive to the length of time spent in the classroom (in contrast to a simple count of courses taken), thus facilitating a comparison of the youths' vocational education experiences on a national level.

A coding system to identify the actual courses taken by the student was developed from the Standard Terminology for Curriculum and Instruction in Local and State School Systems Handbook VI (Putnam and Chismore 1970). The course identification scheme consisted of a two-digit, subject matter prefix (e.g., math, English) followed by a two-digit code, which specifies the individual course within the general category (e.g., Math I, American Literature).

Classification of Vocational Students

The seven subject matter areas identified as "vocational" in Handbook VI were used in this study. These categories are agriculture, distributive education, health occupations, home economics, office occupations, technical education, and trade and industrial occupations. Several decision rules were adopted to accommodate the available data and refine the definition of vocational education (Campbell, Orth, and Seitz 1981). Technical education and trade and industrial courses were combined and designated as trade and industrial. Only courses considered to be vocationally oriented were included in the home economics classification, in contrast to homemaking or consumer home economics. In addition, business and industrial arts courses were differentiated from office occupations and trade and industrial courses, and were not considered vocational. In general, business and industrial arts courses are directed toward the acquisition of knowledge and skills that are intended for personal use rather than for occupational training.

Five elements were conceptualized to describe possible patterns of participation in vocational education. They are as follows:

- Intensity
- Diversity
- Continuity
- Supportive diversity
- Proximity

These elements are based upon certain assumptions about th vocational education system in secondary schools. They are defined operationally in terms of scales that have permitted the school experiences recorded in students' transcripts to be described as numbers.

The first element, intensity, represented the actual number of credits a student took in a vocational service area (e.g., agriculture, business and office). Only those credits were recorded that were taken in the students' major service area. For a major specialty to be established for a student, at least one full Carnegie unit credit, representing a year's work, had to be earned, and at least six-tenths of the vocational credits had to be in that service area. This element was based upon the assumption that more involvement in the courses within a service area should result in a greater accumulation of skills in that area and, consequently, in greater likelihood of effects on either labor market experience or additional schooling.

The second element, diversity, represents the number of service areas in which the student took credits. It was scored as an actual count of areas. It is a contrast to intensity, because specific skills seem unlikely to develop from a sampling of courses across service areas.

The third element, continuity, was defined as the grade levels in which courses in the specialty were taken. The continuity score was a simple count of the number of levels in which the student pursued the specialty. It was based on the assumption that skills developed over a longer time period are more likely to persist than those learned in a short period.

The fourth element, supportive diversity, is included to reflect the possible contribution that courses in one area might make to the successful application of skills developed in another service area. To receive a supportive diversity score, the student had to have a specialty and, in addition, had to have taken one or more of a set of courses in other service areas judged to be useful in the practice of the specialty. For example, a knowledge of accounting may be useful to a student trained in autobody repair if that student plans to open an autobody repair shop. The score was a simple count of the credits in such related courses.

The fifth element, proximity, was intended to represent the freshness of the training at the time of its application. The scale was an ordinal one, with three points assigned for specialty courses taken in both the eleventh and twelfth grades, two assigned for twelfth grade specialty courses taken without eleventh grade specialty courses, one assigned for eleventh grade specialty courses taken without twelfth grade specialty courses, and zero assigned when there were no specialty courses taken in either eleventh or twelfth grades. The assumption was that skills learned earlier and subsequently unused would tend to be forgotten. They might not, therefore, be available when needed in a job situation.

The information in each student's transcript was translated into a profile of scores representing the five descriptive concepts. Five patterns of participation were hypothesized after reviewing a random set of transcripts, and were empirically verified. (The match between number of concepts and number of patterns is coincidental.) Each student profile was assigned to the pattern it most nearly resembled. The patterns were designated as follows:

- o Concentrators
- o Limited Concentrators
- o Concentrator/Explorers
- o Explorers
- o Incidental/Personals

Concentrators are those students who, on the average, had six or more credits in their vocational education specialty area. They frequently had an additional credit in another service area, and occasionally this credit could be judged as supportive of their specialty. They averaged three years of courses taken in the specialty area, and nearly always took courses in both the eleventh and twelfth grades.

Limited Concentrators are those who averaged a little more than three credits in a service area and tended to take their specialty courses in only two years. They took their specialty courses in both eleventh and twelfth grades a little less often than the Concentrators did. They also took more courses outside of their specialty area, but only occasionally were those judged to be supportive.

Concentrator/Explorers are those who averaged almost a full credit (0.9) less than Limited Concentrators in a specialty. They tended to spend fewer than two years pursuing a specialty and frequently did not take specialty courses in the twelfth grade. Many of them sampled at least two service areas, but rarely were those areas judged to be supportive of their specialty.

The Explorers are those who took courses in three or more service areas and did not develop a specialty. They did not have scores in the other areas because a specialty was necessary to earn the other scores.

The Incidental/Personal participants are those who averaged slightly less than one credit in vocational education. Some of them took enough courses to qualify for a specialty but not enough to be classified as a Concentrator/Explorer or as a Limited Concentrator. When they did develop a specialty, there was some tendency to take a course in that specialty in the upper grades, but judging from the average proximity score (0.6), this was probably more often in the eleventh grade than in the twelfth.

All but two of the youths in the sample could be classified quite readily according to these patterns.

Description of the Data Used for This Study

The proposed focus for this research effort, examining the effects on job satisfaction of secondary vocational education, suggested several methodological considerations to be taken into account in the selection of a subsample to be used for analysis. A primary objective was to maximize the number of cases included and yet preserve a relatively homogeneous sample in terms of labor market opportunities and exposure to vocational courses and programs. For example, it is inappropriate to treat high school graduates and dropouts as an aggregate given the possible effect of credentialing (i.e., having a diploma) on job satisfaction. In addition, the method by which vocational education is measured in this study is dependent upon the information available from students' transcripts. Another factor concerned the demographic distribution of the subsample and the generalizability of the results in terms of the youth population.

Data for the analyses were taken from the 1979, 1980, 1981, and 1982 surveys. The number of individuals and the demographic characteristics of the subsample vary depending on whether data from individual years or some combination of years were used in the analyses. The subsamples were always selected so as to contain only high school graduates. Due to the variations in sample size and characteristics, specific details are presented in conjunction with the results of each analysis in chapter 3.

Analytic Approach

It seems reasonable to suppose that the choice of curriculum in the high school is influenced by the personal and background characteristics suggested in the model (see figure 1). Some, but not all of these characteristics may be controlled for by data available in the NLS Youth. Those which were available in useable form and have logical, theoretical, or empirical support became the basis for analysis.

There is documented evidence that choice of vocational education as opposed to other kinds of high school curricula has some influence on level of education, although there is considerable overlap in the effects of the various kinds of curricula (see, for example, Campbell, Gardner, and Seitz 1982). There is also documented evidence that level of education and job satisfaction are related (see Quinn and Baldi de Mandilovitch 1977). Finally, there are logically intuitive reasons, as well as evidence from other studies, to suggest that occupation, internal

personal needs and characteristics, age, and experience may also influence job satisfaction.

Job satisfaction itself is seen as made up of several components. There are those satisfactions related to the job context (i.e., the working situation); job potential (i.e., the opportunity for personal improvement); job outcomes (i.e., the various forms of payment); and interpersonal relations on the job (i.e., the relationship with coworkers, or supervisors).

Several analyses were conducted for the purpose of refining the definition of job satisfaction and its antecedents prior to and in conjunction with evaluation of the models represented by the equations used in the primary analyses. They included factor analyses and reliability estimation of the scales and measures used to describe job satisfaction, and those antecedents that were scaled (e.g., self-esteem).

Correlates of Job Satisfaction

The basic equation used to estimate these correlates may be represented as follows:

$$JS_{ni} = a_n + b_n C_i + c_n E_i + d_n P_i + f_n M_i + g_n F_i + j_n TRE_i + k_n EL_i + m_n HRP_i + n_n AG_i + \varepsilon_{ni}$$

where JS_{ni} = a score on a factor of satisfaction (n = 1-4)
C = a K-element vector of job characteristics
E = an 8-element vector of education
P = a 3-element vector of personal characteristics
M = a K-element vector of attitudinal variables
F = a K-element vector of occupations
TRE = training-related employment
EL = a 6-element vector of educational levels
HRP = hourly rate of pay
AG = age
ε = a random disturbance term reflecting unmeasured variables

The elements in C include--

Size of firm
Unionization
Shift
Full-time/part-time
Fringe benefits

The elements in C include--

Vocational Concentrators
Limited Concentrators
Concentrator/Explorers
Explorers
Incidental/Personals
Self-reported academic curriculum with no vocational credits
Incomplete records

The elements in R include--

Race
Sex
SES

The elements in M include--

Self-esteem scale score
Job aspirations

The elements in F include--

Professional and technical
Managerial
Sales
Clerical
Crafts
Operative
Farm
Service
Private household
Missing data on occupation

The elements in EL include--

13 years
14 years
15 years
16 years
17 or more years

This equation permitted the evaluation of potential antecedents of job satisfaction, as required to meet the first objective presented in chapter 1. The context is that of a series of controls that may be intermediating in the development of job satisfaction. The complexity of the concept of job satisfaction was treated by estimating this equation with four different definitions as the dependent variables. These definitions were derived by applying suggestions from the literature to the interpretation of the results of the preliminary analyses discussed prior to the equation. A more detailed discussion of these analyses is presented in chapter 3.

Nonmonetary Relationships with Labor Market Outcomes

The relationship of nonmonetary influences on earnings--another objective specified in chapter 1--was evaluated by estimating an equation in which hourly rate of pay (HRP) became the dependent variable, and the four forms of job satisfaction entered the equation as explanatory variables:

$$HRP_i = a_5 + b_5C_i + c_5E_i + d_5P_i + g_5F_i + k_5EL_i + n_5AG_i +$$

$$+ q_5W_i + r_5JS_{1i} + s_5JS_{2i} + t_5JS_{3i} + v_5JS_{4i} + \varepsilon_{5i}$$

The elements in W include--

Region
- Northeast
- South
- West

Work experience

The elements in all of the other vectors were those defined for the first equation.

The question arises as to whether there may be simultaneity between HRP and the four forms of JS_n. The logical way in which JS should influence HRP is through increased productivity. The literature reviewed in chapter 1 finds very little evidence for this path of influence. However, to provide a more rigorous evaluation of the possibility of simultaneity, a system of simultaneous equations was evaluated. The use of a two-stage least squares (2SLS) technique permitted the estimation of HRP and JS.

Job Satisfaction and Training-related Placement

Additional analysis with equations based on the model for job satisfaction permitted an evaluation of the persistence of job satisfaction for students who had received vocational training in high school and had graduated. Objective 3 of the study is "to determine whether job satisfaction persists over time for vocational students in training-related employment as compared to students not so classified." Generally, the basic equation is appropriate to address this objective, with a change in sample specifications and a couple of exceptions in terms of the independent and dependent variables.

The comparison group for vocational students in training-related jobs could be limited either to individuals who were eligible for such jobs but did not obtain them, or to all individuals who are not classified as being in training-related jobs. Consequently, two research questions were developed to investigate these possible comparisons.

First, is there a difference in job satisfaction over time between individuals who were eligible for training-related employment and either did or did not obtain such? To answer this question, the subsample included only those individuals who were eligible for training-related placement (i.e., Concentrators, Limited Concentrators, Concentrator/Explorers, and Incidental/Personals) and who were employed in 1979 or 1980. For this subsample, the elements in E were--

Training-related * Concentrator
Training-related * Limited Concentrator
Training-related * Concentrator/Explorer
Training-related * Incidental/Personal

Second, is there a difference in job satisfaction over time between individuals in training-related employment and students not so classified? This subsample consisted of those who were employed in 1979 or 1980. For this subsample, the elements of E include--

Training-related * Concentrator
Nontraining-related * Concentrator
Training-related * Limited Concentrator
Nontraining-related * Limited Concentrator
Training-related * Concentrator/Explorer
Nontraining-related * Concentrator/Explorer
Training-related * Incidental/Personal
Nontraining-related * Incidental/Personal
Explorer
Missing data on patterns of participation

For each of the models, analyses were conducted for 1979 and 1980 as well as for the difference between 1979 and 1980 for the same job satisfaction scores as defined in the first model.

Job Stability and Vocational Education

A fourth objective, identified in chapter 1, was to determine the relative job stability of vocational students when compared with others not so classified. The equation used to evaluate this objective had, as a dependent variable, job mobility (JM).* The form of the equation is as follows:

$$JM = a_n + b_n AS_i + c_n E_i + d_n P_i + f_n JS_{ni} + g_n EX_i + \varepsilon$$

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*This variable was so labelled to avoid confusing the acronym used in the equation with the similar initials of job satisfaction, as both variables appear in the same equation.

JM was defined as a mobility rate calculated by dividing the number of jobs held between 1978 and the 1981 interview by the number of weeks in the labor force.* For those employed in 1981, their current job was not included. Control variables included the vectors of personal characteristics, defined as before, and work experience, defined as the number of months since leaving school.

The remaining variables differ in definition from their use in the equations discussed earlier. The aspiration vector (AS) was defined as the level of job content aspired to at age thirty-five and also as a measure of change in aspiration between the time of the 1979 interview and the 1982 interview. The education vector (E) represented a set of dummy variables for the patterns of participation as used in the previous equations, but subdivided the sample into those respondents who were in training-related employment for the majority of their jobs, if there was sufficient specialization to determine training-related employment. Otherwise, the variable was defined as previously. The job satisfaction variables (JS) used the definition described for the first set of four equations, where the four forms of job satisfaction were the dependent variables. This vector included the 1979 job satisfaction scores as well as a measure of change in job satisfaction between the 1979 and 1981 interviews. These changes permitted a partial accounting for the time-bound character of job mobility.**

The effect of summer jobs while in school may inflate apparent mobility. This possibility was treated by conducting the analysis only for those high school graduates who were not enrolled in postsecondary education at any time including or subsequent to the first interview.

Educational Expectations and Occupational Aspirations

One final analysis was conducted in an effort to clarify the dynamics of the participation in vocational education and its effects on occupational and educational aspirations. With the availability of longitudinal data encompassing tenth grade

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*This scale ranges from 0 to 1, with a mean of .015, reflecting average length of job of about one year.

**A desirable additional specification for this equation would be a variable reflecting labor market conditions at the time of each job change. Such information is not available in the data set. Subsequent research should attempt to evaluate the possible effect of labor market changes.

through graduation, it was possible to examine changes in aspirations, pertaining both to jobs and to education. The change score was defined as the difference between expected education level attainment at the first interview (1979) and that at the last (1982). A similar score was defined for the content status level* of the aspired occupation at the two points in time. These scores were treated as dependent variables in equations that considered personal characteristics, with a dummy variable representing self-reported academic curriculum, intensity of concentration, proximity of vocational program to graduation, and with certain school characteristics as explanatory variables. For the educational expectation score, the range represented by the scale was from less than high school graduation to a post-master's graduate program. The scale could take values from -7 through a mean of zero to +7. The occupational aspiration scale, constructed similarly, was based on the Scoville (1969) job content categories. The change score ranged from a -4 to a +4, with a mean of zero.

There are three overlapping but somewhat conflicting hypotheses that may be examined by these procedures. The first represents the conventional wisdom that young people tend to aspire more highly than they are likely to attain. As they gain experience and become aware of the realities of attaining certain goals, their aspirations tend to moderate. This hypothesis would predict a predominance of negative change scores and a resulting negative mean for the population. The second hypothesis is that advanced by Grubb and Lazerson (1975), that vocational education lowers the expectations of young people. This hypothesis can be evaluated by examining the sign and significance of the coefficients for intensity and proximity in the equation. The third hypothesis represents the expectation that participation in an academic curriculum will increase the aspirations of young people. It can be evaluated by examining the sign and significance of the academic curriculum coefficient.

The results of these analyses are presented in the next chapter. The final chapter considers their policy implications.

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*Job content status was scaled by Scoville (1969) from five for low status to one for high status based on the amount of education, skill, intellectual responsibility, and similar variables required by the job.

CHAPTER 3

THE FINDINGS

Findings Related to Data Characteristics

The identification of job satisfaction and the availability of information about it in the NLS Youth data were the first analyses undertaken. These analyses consisted of two parts. First, there was a determination of the level of reliability of a scale to be used in subsequent analysis--the self-esteem scale (see Appendix A). The significant concern about this scale was its internal consistency. A coefficient alpha (Winer 1962) was computed for this scale. The obtained value was .83. This level of reliability was judged to be ample for the use of the scale in the analyses that were undertaken concerning job satisfaction.

Second, there was an analysis of the items in the NLS Youth interview data that were designed to elicit the respondents' level of satisfaction with their current jobs at the time of the interviews (see Appendix B).*

The method used for analyzing these data was a principal components factor analysis followed by a varimax rotation of those factors that had eigenvalues closely approaching one or greater (the Kaiser criterion**). Variables that shared at least 10 percent common variance with the underlying factor were retained for use in analysis. After the items identifying each factor were determined, the item scores were simply combined to provide a total score on the factor. The factor analyses were replicated for the data from three interview years (see Appendix

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*In addition to these items, a number of other items that reflected intentions or actual job-related actions were also considered. They included the reservation wage for changing jobs, whether or not the respondent was looking for new work while employed, willingness to take a new job, or reporting similar actions or expressed intentions. The first principal components analysis identified a number of variables that lacked sufficient communality with the remaining set to be adequately reflected in any factor. These were dropped from the set and a second run was made that became the basis for the analysis.

**Strictly speaking, the Kaiser criterion specifies an eigenvalue equal to or greater than one. There is, however, considerable controversy about this level (see Thorndike 1978). We have therefore chosen to relax it to the .95 eigenvalue and to retain a factor exceeding this level, if it is readily and logically interpretable.

C). There was some minor variation but substantial similarity across the three years. Because the respondents were the same individuals, with slight attenuation of sample sizes due to nonresponse and some increase due to additional respondents' graduating and obtaining jobs, changes would have to reflect a considerable component of change within individuals if the factor structure had altered in any important way. Such changes were not observed.

Four factors met the eigenvalue criterion. These were rotated, using the varimax procedures, to what was judged to be adequate simple structure. They accounted for approximately 63 percent of the common variance in the data.

One factor appeared to represent a personal on-the-job development and skill-related component. Items loading on this factor dealt with the chance to do one's best work, to develop new skills, and with overall experiences of satisfaction. These variables had trivial loadings on the remaining factors--less than 10 percent variance common with any other factor. One additional variable, pleasantness of the work place, did not differentiate as cleanly. It had 15 to 16 percent common variance with the first factor, but also shared about 14 percent with another factor, suggesting that the intended meaning of the item was perceived differently by some respondents. It was handled in the analysis by assigning it to the logical loading, the work situation.

A second factor appeared to represent the conditions of the work place. Two items representing unhealthy or dangerous conditions loaded very substantially on this factor. The item on pleasantness of the work place had a negative loading here. This pattern was consistent with the expectations of the question and appeared to justify the inclusion of the item in the definition of the factor.

A third factor appeared to represent the outcomes of work, or job rewards. This factor carried the substantial loadings of good pay job security, and a chance for advancement. With the exception of the latter, these variables had extremely trivial loadings on the other three factors. The "chance for advancement" variable hovered around a 10 percent common variance with the first factor, for two of the three survey years. This factor had a substantial loading on the use and learning of new skills--a reasonable prerequisite to advancement.

Two variables on the remaining factor had substantial loadings. These variables did not have more than 4 percent common variance with any other factor. They were combined as the human interaction factor because these two variables were quality of supervision and friendliness of coworkers.

The factor structure in these data was strikingly clean, with only two variables showing factorial complexity above a 10 percent common variance with more than one factor. One of these was "pleasant surroundings," which loaded both on the work conditions factor and on the personal on-the-job development factor. The other was the chance for advancement variable, discussed in relation to the "job rewards" factor. Given the relatively sharp differentiation among the variables and the distinct characterization of the four factors, it seemed reasonable to define job satisfaction for these data as four distinct variables, and to abandon the notion of a global measure of job satisfaction.* The measures of job satisfaction were calculated as previously described, and the specifications of the equation described in chapter 3 reflect these definitions. The four measures were--

- o personal on-the-job development (JS_1)
- o working conditions (JS_2)
- o job rewards (JS_3)
- o human interactions (JS_4)

These correspond to the four factors previously discussed.

The Correlates of Job Satisfaction

As delineated in chapter 1, the first objective of this study was to determine the correlates of job satisfaction. Because the analysis up to this point did not support the notion of a global measure, but rather the four just discussed, separate equations were estimated for each of the four.

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*It is interesting to note that an earlier study (Weitzel et al. 1973) found conceptually similar factors. These factors were labelled Satisfaction with Personal Progress and Development; Satisfaction with Compensation; Satisfaction with Organizational Context and Satisfaction with Superior-Subordinate Relationships. The researchers used a sample of salaried employees from five different companies and a series of self-report scales different from those used in the present study. They also carried out second and third order factor analyses which led to two subfactors and a general factor. This procedure was not replicated in the present study.

Satisfaction with Personal On-the-Job Development

Table 1 presents the results for JS_1, satisfaction with personal on-the-job development.* As identified in chapter 1, major interest centers around the relationship of secondary vocational education concentration with job satisfaction. In the case of satisfaction with personal on-the-job development, none of the educational variables except completing sixteen years of schooling show a significant relationship, and therefore none are shown in table 1. (The complete results are given in Appendix E.)

If vocational education has an effect on this form of job satisfaction, it must be an indirect one, operating through some other variable. The major explainers of variance in this form of job satisfaction are job characteristics, some isolated personal characteristics, motivation, and occupation. Which of these might be channels for an indirect influence of vocational education on satisfaction with personal on-the-job development?

Three candidates emerge from an examination of table 1. They are firm size, the match between aspiration and current job, and occupation. Firm size is a candidate because the size of the estimates of contribution to satisfaction in this instance is inversely proportional to firm size. Other studies (Gardner, Campbell, and Seitz 1982) have found that, at least for men, there is a lesser likelihood that vocational Concentrators will be employed in larger firms. Thus, in the case of men, vocational education may be directing them toward work situations where they perceive greater and more satisfying opportunity for on-the-job development.

The match between the job and aspirations, as an indirect channel for vocational education influence, can best be considered a possibility rather than a likelihood. In earlier work, Campbell et al. (1981) found a stronger likelihood that vocational Concentrators would be in training-related employment than those with little vocational education. Furthermore, there is a greater tendency for both male and female Concentrators to show a match between current and aspired jobs in this sample than for those with less or no vocational education. These two facts are consistent with the hypothesized indirect effect.

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*Although the equations rely on the longitudinal nature of the data for specific variables, they were run for two separate years as a partial cross validation.

TABLE 1

THE SIGNIFICANT CORRELATES OF SATISFACTION
WITH PERSONAL ON-THE-JOB DEVELOPMENT

(Equation JS_1)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	1.05494*	.70877*
Medium firm size	.75314*	
Large firm size	.51689	
Union	-.30274	
Evening shift	-.39299*	-.46871*
Split shift		-.62050*
Hours per week	.42292*	.24958*
Fringe benefits		
- Paid vacation	.31219*	
Personal characteristics		
Race and sex		
- Black male		-.36834*
- White female		.24520
- SES		-.00477
Motivation		
Self-esteem		.04426*
Job and aspirations match	.73268*	.52871*
Educational level		
Highest grade completed-16		-.38992
Occupation		
Professional	2.02245*	1.61881*
Managerial	1.01142*	1.41341*
Sales	.92711*	.93231*
Clerical	.75334*	.78701*
Crafts	1.03863*	1.07780*
Farm	1.56296*	
Service		.61037*
Hourly rate of pay	.00067	.00094*
Training-related job		.24511
n	2304	2674
R^2	.1826	.1569

NOTE: All values are significant at the .05 level. An * indicates values significant at or above the .01 level. The numbers represent a unit change in the scale of job satisfaction corresponding to a unit change in the scale of each explanatory variable. The job satisfaction items are shown in Appendix B. The scaling of the explanatory variables is shown in Appendix D.

The third possibility for an indirect vocational effect is through choice of occupation. Vocational education prepares a substantial proportion of its participants in the skills of clerical, crafts, and to a lesser extent, sales occupations. All three of these occupational areas show strong, substantial, and positive associations with job satisfaction as represented in personal on-the-job development (JS_1). Thus, although evidence of direct effects for secondary vocational education on this form of job satisfaction is lacking, there is a strong possibility that secondary vocational education exerts positive indirect effects.

Satisfaction with Working Conditions

The second form of job satisfaction identified in this study was satisfaction with working conditions (JS_2). This form of job satisfaction showed a positive association with concentration in vocational education in the 1979 data, but not for this equation in the 1980 data (table 2). However, vocational Concentrators did have a significant positive association with working conditions in the 1979 and 1980 data in another, similar equation (not shown) in which hourly rate of pay was identified differently. Thus, it appears possible that there is a persistent association between vocational education and satisfaction with working conditions.

Other consistent correlates of satisfaction with working conditions include job characteristics, self-esteem and personal characteristics. Firm size is again a factor, and although the trend is not as pronounced as with JS_1 (personal on-the-job development) when compared with very large firms, working conditions are perceived to be better in the smaller ones. Unions are found where conditions are perceived to be unsafe, unhealthy, and unpleasant. Females, regardless of race, perceive their working conditions to be more satisfactory even after the study controlled for the effects of occupations. Occupations show positive associations with satisfactory working conditions in the vocational-education-related examples of sales, clerical, and service occupations, but not in the instance of crafts occupations. Self-esteem is positively related to satisfaction with working conditions, but hourly rate is negatively related.

The correlates that reflect the largest associations, however, are among the occupations. Some of these contribute substantially more than a full point on the nine-point scale of jo satisfaction. Although vocational education does show an impact on this form of job satisfaction, it must do so in a dontext of other, more powerful influences.

TABLE 2

THE SIGNIFICANT CORRELATES OF SATISFACTION
WITH WORKING CONDITIONS

(Equation JS_2)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	.62212*	.68326*
Medium firm size	.83113*	.51849*
Large firm size	.72633*	.54742*
Union	-.74653*	-.37188*
Evening shift	-.33126	-.29304
Hours per week	-.32250*	-.40305*
Health insurance		-.24114
Education		
Concentrator	.62518*	
Limited Concentrator	.54973*	
Personal characteristics		
Race and sex		
- Hispanic female	.61675*	.56504*
- Black female	.49183*	.39972*
- White female	.44109*	.29618*
Motivation		
Self-esteem	.03692*	.05631*
Job and aspirations match		.19186
Educational level		
Highest year completed-15	.41241	-.46388
Highest year completed-16		.43038
Occupation		
Professional	.56916	.52578
Managerial	1.59827*	1.25245*
Sales	1.49067*	1.35906*
Clerical	1.34505*	1.26765*
Crafts	-.53502*	-.65543*
Operatives	-.51623*	-.35640
Service	.35067	.44141*
Private household	2.07941*	1.60878
Age	-.08335	
Hourly rate of pay		-.00091*
n	2304	2674
R^2	.2946	.2678

NOTE: All values are significant at the .05 level. An * indicates values significant at or above the .01 level.

Satisfaction with Job Rewards

The third form of job satisfaction (JS_3) was defined as job-related rewards--that is, satisfactory pay, job security, and chance for advancement. Table 3 shows the significant correlates of this form of job satisfaction. Neither vocational education nor educational level shows any significant association with this form. And, only as education influences occupation is there a readily apparent indirect effect. For example, sales, clerical, and farming occupations show positive associations with the rewards form of job satisfaction. Vocational education prepares youths for all three of these.

There is also a less apparent but likely indirect effect. Vocational education concentration is associated with working more hours per week (Gardner, Campbell, and Seitz 1982). The variable of hours worked per week is positively associated with satisfaction with job rewards. Therefore, there appears to be a possible track of influence from vocational education, through hours worked, to satisfaction with job rewards.

The major correlates of satisfaction with job rewards are fringe benefits, hourly rate of pay, and occupation. It is interesting to note that firm size has an opposite effect on this form of job satisfaction than on the others discussed. The very large firms appear to be the places where job rewards are perceived to be more satisfactory. It is also interesting to note that, although the presence of a union has a large effect on hourly rate of pay, it has no effect on perception of satisfactory job rewards. This suggests that union-generated increases in pay offset the otherwise negative association of unions with job satisfaction that are present with the other forms.

Satisfaction with job rewards is not subsumed in money alone, however. Clerical, sales, and farming are not the highest paid occupations. As will be seen in a subsequent analysis, they are negatively associated with hourly rate of pay. The indirect contribution of vocational education, if any, therefore appears to be in areas of satisfaction unrelated to money.

Satisfaction with Human Interactions

The fourth form of job satisfaction identified in this study was personal or human interactions (JS_4). The variables represented in this equation were not adequate to specify a reasonably well-fitted model. The R^2, although significant, was very slightly over .05 in each data year. The variables that accounted for significant portions of the variance in this scale were firm size and self-esteem. These tended to be consistent across both data years. They also both have intuitively logical explanations. Smaller firms may provide a better opportunity for

TABLE 3

THE SIGNIFICANT CORRELATES OF SATISFACTION WITH JOB REWARDS

(Equation JS_3)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Medium firm size		-.35589
Large firm size	-.49465	
Hours per week	.25317	
Health insurance	.34021*	.42608*
Life insurance	.34654*	.40215*
Paid vacation	.55984*	.39186*
Personal characteristics		
Race and sex		
- Black males	-.33549	
- Black females		-.59932*
- White females		-.22780
Motivation		
Self-esteem	.03039*	.03456*
Job and aspirations match	.34575*	
Age	-.10355*	-.08249*
Occupation		
Professional	.58165	.46349
Managerial	.82214*	1.03014*
Sales	.64593*	
Clerical	.43308	.57604*
Farm	1.24015*	.81397
Private household		1.64273
Hourly rate of pay	.00291*	.00187*
n	2304	2674
R^2	.1961	.1515

NOTE: All values are significant at the .05 level. An * indicates values significant at or above the .01 level.

personal contact with the entire work force, frequently including owners as well as managers. Persons who realisticly accept themselves probably have higher self-esteem scores. These same people are likely to be able to establish good interpersonal relations with their supervisors and coworkers.

There are several other isolated significant correlates shown in table 4, but there is little evidence to provide an interpretation. In general, the NLS Youth data confirm the existence of this satisfaction phenomenon, but the specific information to determine its correlates or interpret its meaning is not logically evident in that data base. The consistent and significant association of self-esteem with this scale and the absence of other consistent trends suggest that the interpersonal relations aspect of job satisfaction is largely an internal psychological phenomenon that is relatively independent of variables in the work place, in contrast with the other forms of job satisfaction, with the possible exception of firm size. Adequate explanation of this form of job satisfaction did not appear possible from these data.

The Nonmonetary Correlates of Hourly Rate of Pay

The second objective presented in chapter 1 concerned the relationship of nonmonetary elements, such as job satisfaction, with earnings. The model specified the same set of variables as those used in the equations for the four forms of job satisfaction, with three exceptions. These were: (1) the inclusion of the job satisfaction scores as explanatory variables, as the objective specifies; (2) the inclusion of a vector of work-related variables representing region of the country and work experience; and (3) the deletion of the motivation vector and training-related placement. Most of these variables had been evaluated extensively in relation to hourly rate of pay in other studies with these data (for example, Gardner, Campbell, and Seitz 1982).

The primary point of interest in this study was the influence of job satisfaction on hourly rate of pay. Table 5 shows the results of this analysis. Two job satisfaction variables, working conditions and job rewards, showed consistent and strongly significant contributions across both data years. Working conditions were negatively associated with hourly rate of pay, and job rewards were positively associated. Both appear plausible and even self-evident.

In the case of working conditions, the unpleasant, unhealthy, and dangerous jobs are probably harder to fill, thereby commanding a higher rate of pay. That satisfaction with job rewards is strongly and positively associated with hourly rate of pay seems redundant. Recall, however, that several occupations--

TABLE 4

THE SIGNIFICANT CORRELATES OF SATISFACTION WITH HUMAN INTERACTIONS

(Equation JS_4)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	.33624*	.29018*
Medium firm size	.22778	
Union	-.17405	
Education		
Academic (no vocational)	-.23413	
Personal characteristics		
Race and sex		
- Black males		-.31494*
- Black females		-.26595*
Motivation		
Self-esteem	.01647*	.02466*
Occupation		
Private household	-.80274	
Hourly rate of pay		-.00037*
n	2304	2674
R^2	.0507	.0538

NOTE: All values are significant at the .05 level. An * indicates values significant at or above the .01 level.

TABLE 5

THE SIGNIFICANT CORRELATES OF
HOURLY RATE OF PAY

(Equation JS_5)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	-101.15*	-81.11*
Medium firm size	-91.00*	-62.82*
Large firm size	-82.86*	-46.46*
Union	83.58*	67.54*
Evening shift	40.76*	
Split shift		45.08
Varying shift		19.27
Life insurance	29.29*	39.43*
Paid vacation		
Education		
Limited Concentrator		-32.38
Concentrator/Explorer		-37.31
Incidental/Personal		-38.08
Personal characteristics		
Race and sex		
- Black male	-22.36	-38.52*
- Hispanic female	-45.59	-73.93*
- Black female	-42.72*	-80.46*
- White female	-48.95*	-85.18*
Educational level		
Highest year completed-15	-35.96	
Region		
South	-21.29*	-34.44*
West	29.52*	34.13*
Work experience	1.18*	1.14*
Job satisfaction		
Personal development		4.29
Work conditions	-4.74*	-7.40*
Job rewards	16.98*	15.63*
Human interactions		-14.69*
Occupation		
Managerial	-54.47*	
Sales	-44.94*	
Clerical	-36.79*	
Crafts	32.18	37.06
Farm	-133.23*	-97.89*
Service	-43.48*	-31.69
Private household	-138.28*	-205.60*
n	2021	2373
R^2	.3410	.3369

NOTE: All values are significant at the .05 level. An * indicates values significant at or above the .01 level.

notably those in sales, clerical, and farming--were also strongly related to satisfaction with job rewards. They are negatively related to hourly rate of pay. Thus, it appears that satisfaction with job rewards and hourly rate of pay are not synonomous, although they do have a positive association. In the 1980 data, personal on-the-job development had a positive association and human interactions had a negative association with hourly rate of pay. Because the effects of firm size and occupation, both of which are associated with these forms of job satisfaction, have been held constant, there seems to be a remaining unique influence on pay for these two variables, although the absence of significant coefficients in the 1979 data requires the conclusion to be tentative. Other nonmonetary variables that showed consistent associations with hourly rate of pay were race and sex (negative for blacks and females), firm size (the larger the firm, the higher the pay), region of country (positive for West and negative for South), and work experience (positive but small).

As suggested in chapter 2, the question of simultaneity between job satisfaction and hourly rate of pay was considered. Two-stage least squares equations were estimated for both of these kinds of dependent variables. The resulting equations (not shown) did not produce any significant coefficients for either estimated hourly rate of pay or for estimated job satisfaction. If simultaneity exists, it is apparently small, and is probably contained within the unmeasured and unmeasurable variance in this study. Therefore, ordinary least squares equations stand as the best available estimates of the associations of job satisfaction and the other variables with hourly rate of pay.

Training-related Placement and Job Satisfaction

Analyses were designed to examine the effect of training-related placement on job satisfaction for two different comparison groups--those who were eligible for training-related placement and did not obtain such, and those who were not eligible for training-related placement. The first set of equations was designed to answer the following question: Is there a difference between individuals who were eligible for training-related employment and those who either did or did not obtain such?

To answer this question, the subsample was restricted to individuals who were eligible for training-related placement (i.e., Concentrators, Limited Concentrators, Concentrator/Explorers, and Incidental/Personals). The comparison group consisted of the respondents in those groups who did not obtain training-related employment. No significant differences were found on any of the four measures of job satisfaction for persons eligible for training-related employment who did or did not obtain such (tables 6 to 9). Thus, when comparing vocationally

TABLE 6

CORRELATES OF PERSONAL JOB SATISFACTION FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size		1.0355*
Paid vacation	.3888	
Missing data on life insurance	1.7234	
Missing data on firm size		.7385*
Evening shift		-.4198
Split shift		-.8495
Motivation		
Self-esteem	.0379	.0385*
Occupational aspiration match	.5693*	.6571*
Personal		
Black male		-.5624
Occupation		
Professional	2.0515*	1.4506*
Managerial	1.0329*	1.2794*
Sales	.9726*	
Clerical	.7370*	.7378*
Crafts	.7381	.5717
Hourly rate of pay		.0009
Education		
Training-related Concentrator	.3479†	-.0589†
Training-related Limited Concentrator	.3054†	.1362†
Training-related Concentrator/Explorer	.1298†	-.0036†
Training-related Incidental/Personal	-.2451†	.2338†
df	960	1109
R^2	.1861	.1920

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

TABLE 7

CORRELATES OF SATISFACTION WITH JOB CONDITIONS FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

Variable	Regression Coefficients 1979	1980
Job characteristics		
Union	-.8006*	-.3666*
Hours per week	-.4173	-.6505*
Small firm size		.5200
Evening shift		-.3945
Health insurance		-.4658*
Personal		
Black female	.5672	
Hispanic female		.7108*
Motivation		
Self-esteem	.0320	.0434*
Hourly rate of pay		-.0008
Occupation		
Managerial	1.7860*	.9259*
Sales	1.3613*	.8762*
Clerical	1.2640*	1.1833*
Crafts	-.7635*	-.8944*
Operative	-.8422*	-.7306*
Education		
Training-related Concentrator	.0662†	-.1516†
Training-related Limited Concentrator	.0287†	-.1118†
Training-related Concentrator/Explorer	-.1496†	-.0118†
Training-related Incidental/Personal	-.2510†	-.0025†
df	960	1109
R^2	.2975	.3103

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

TABLE 8

CORRELATES OF SATISFACTION WITH JOB REWARDS FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

Variable	Regression Coefficients 1979	1980
Job characteristics		
Large firm	-.7150	
Hours worked per week	.4707*	
Paid vacation	.4084	
Health insurance		.3516
Life insurance		.4965*
Motivation		
Self-esteem	.0379	
Occupational aspiration match	.3818	
Personal		
Hispanic male		-.5703
Black female		-.8035*
Hourly rate of pay	.0029	.0018*
Occupation		
Managerial	.9574	.8155
Farm	1.3272	
Clerical		.5122
Education		
Training-related Concentrator	-.0132†	-.2370†
Training-related Limited Concentrator	.2939†	-.0469†
Training-related Concentrator/Explorer	-.2463†	.0116†
Training-related Incidental/Personal	-.3450†	-.0708†
df	960	1109
R^2	.2364	.1467

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

TABLE 9

CORRELATES OF SATISFACTION WITH INTERPERSONAL RELATIONSHIPS FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size		.3364
Union	-.2492	
Evening shift	.3230*	
Missing data on shift	-2.1281*	
Missing data on firm size		.3071
Motivation		
Self-esteem	.0228*	.0205
Personal		
Black male		-.4999*
Black female		-.2679
Occupation		
Private household	-1.8608	
Education		
Training-related Concentrator	-.0686†	-.0382†
Training-related Limited Concentrator	-.1609†	.0923†
Training-related Concentrator/Explorer	-.1072†	.0668†
Training-related Incidental/Personal	-.0002†	.0827†
df	960	1190
R^2	.0847	.0706

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

trained respondents who did or did not obtain training-related employment, job satisfaction does not seem to be affected.

A second question of interest was: Is there a difference in job satisfaction between individuals in training-related employment and respondents not so classified? The analyses designed to answer this question compared individuals with vocational training with respondents who had no vocational training.

Increased personal satisfaction was associated with having been a Concentrator or Limited Concentrator who had obtained a training-related job (table 10).* Thus, those with the greatest concentration of vocational education who held training-related jobs reported increased opportunities to do their best and to learn skills that were valuable for finding a better job. Increased satisfaction with working conditions, rewards, and interpersonal relationships was reported for Concentrators and Limited Concentrators who had not obtained training-related employment (tables 11 to 13). Thus, there appears to be a trade-off between personal satisfaction and satisfaction with other aspects of the job for some vocationally trained youths. The one exception to this finding was that Limited Concentrators in training-related occupations reported greater satisfaction with a job's rewards in 1979.

Occupational and personal characteristics appeared to be associated with differences in job satisfaction to a greater extent than were educational experiences. Persons from smaller firms reported significantly greater personal satisfaction, and those who worked an evening or split shift or were in a union reported significantly less personal satisfaction. Consistent with previous research, black males reported significantly less personal satisfaction whereas white females reported significantly more. Certain occupations (sales, clerical, for example) were generally associated with increased personal satisfaction when compared with individuals who were laborers.

The results for satisfaction with job conditions were fairly similar to those for personal job satisfaction. Smaller firm size and being female were associated with increased satisfaction with job conditions, while union membership and shift work were associated with decreased satisfaction. One notable difference between personal satisfaction and satisfaction with job conditions was found for the occupational variables. While most of the occupational areas were still associated with increased satisfaction, crafts and operatives occupations were associated wi h

*Three of four coefficients are significant; all have the same sign.

TABLE 10

CORRELATES OF PERSONAL JOB SATISFACTION
(Training-related Effects)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	1.0564*	.7133*
Medium firm size	.7553*	
Large firm size	.5150	
Missing data on firm size	.9030*	.6473*
Union	-.3095	
Evening shift	-.3900*	-.4734*
Split shift		-.6297*
Hours per week	.4239*	.2503
Missing data on hours per week	.5224	
Paid vacation	.3046*	
Personal		
Black male		-.3745*
White female		.2445
Motivation		
Occupation aspiration match	.7229*	.5343*
Self-esteem		.0452*
Occupation		
Professional	2.0059*	1.6306*
Managerial	1.0068*	1.4046*
Sales	.9381*	.9582*
Clerical	.7574*	.8063*
Crafts	1.0209*	1.0907*
Farm	1.5416*	
Service		.6096*
Hourly rate of pay	.0007	.0009*
Education		
Training-related Concentrator	.4183	.1764†
Nontraining-related Concentrator	-.0508†	.4175†
Training-related Limited Concentrator	.4394	.3432
Nontraining-related Limited Concentrator	.1366†	.0102†
Training-related Concentrator/Explorer	.2152†	.2179†
Nontraining-related Concentrator/Explorer	.0219†	-.0750†
Training-related Incidental/Personal	-.0940†	.4784*
Nontraining-related Incidental/Personal	.0055†	.2628†
Explorer	.1033†	.3835†
Missing patterns data	-.0458†	.1245†
df	2248	2619
R^2	.1828	.1583

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

TABLE 11

CORRELATES OF SATISFACTION WITH JOB CONDITIONS
(Training-related Effects)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	.6258*	.6794*
Medium firm size	.8365*	.5123*
Large firm size	.7286*	.5399*
Missing data on firm size	.4648	.4000
Union	-.7473*	-.3578*
Evening shift	-.3335	-.3065
Hours per week	-.3335*	-.4191*
Missing data on hours per week	-.4843	
Health insurance		-.2433
Personal		
Hispanic female	.6778*	.5535*
Black female	.5040*	.3866*
White female	.4580*	.2953*
Motivation		
Self-esteem	.0371*	.0561*
Occupation aspiration match		.2061
Hourly rate of pay		-.0009*
Age	-.0850	
Occupation		
Professional	.5651	.5330
Managerial	1.6060*	1.2287*
Sales	1.4704*	1.3723*
Clerical	1.3343*	1.2784*
Crafts	-.5161*	-.6270*
Operative	-.5164*	-.3432
Service	.3567	.4619*
Private household	2.0544*	1.6620
Education		
Highest grade completed-15	.4126	-.4900
Highest grade completed-16		.4064
Training-related Concentrator	.1987†	.1621†
Nontraining-related Concentrator	.6615	.9356*
Training-related Limited Concentrator	.1584†	.1775†
Nontraining-related Limited Concentrator	.4299	.0766†
Training-related Concentrator/Explorer	-.0566†	.2561†
Nontraining-related Concentrator/Explorer	-.2184†	.0444†
Training-related Incidental/Personal	-.1160†	.3255†
Nontraining-related Incidental/Personal	-.0820†	.1193†
Explorer	.3778†	.1114†
Missing data on patterns	.1208†	.2087
df	2248	2619
R^2	.2950	.2686

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

TABLE 12

CORRELATES OF SATISFACTION WITH JOB REWARDS
(Training-related Effects)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Medium firm size		-.3605
Large firm size	-.4849	
Missing data on firm size	-.5259	
Missing data on union		.3734
Hours worked per week	.2560	
Health insurance	.3449*	.4227*
Life insurance	.3454*	.4061*
Paid vacation	.5487*	.4074*
Personal		
Black male	-.3478	
Black female		-.6039*
White female		-.2223
Motivation		
Self-esteem	.0290*	.0348*
Occupation aspiration match	.3420*	
Age	-.1004	-.0820*
Hourly rate of pay	.0029*	.0018*
Occupation		
Professional	.5420	.4768
Managerial	.8286*	1.0122*
Sales	.6692*	
Clerical	.4379	.5839*
Farm	1.2457*	.8106
Private household		1.6560
Education		
Training-related Concentrator	.3261†	.0310†
Nontraining-related Concentrator	.3561†	.6066
Training-related Limited Concentrator	.5585*	.2174†
Nontraining-related Limited Concentrator	.1984†	.1004
Training-related Concentrator/Explorer	.0077†	.2620†
Nontraining-related Concentrator/Explorer	.0407†	.3079†
Training-related Incidental/Personal	-.1497†	.1905†
Nontraining-related Incidental/Personal	.1050†	.1361†
Explorer	-.2449†	.1075†
Missing data on patterns	.0185†	.0322†
df	2248	2619
R^2	.1959	.1516

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

TABLE 13

CORRELATES OF SATISFACTION WITH INTERPERSONAL RELATIONSHIPS
(Training-related Effects)

Variable	Regression Coefficients 1979	1980
Job characteristics		
Small firm size	.3362*	.2893*
Medium firm size	.2267	
Missing data on firm size	.3182*	.2882*
Union	-.1768	
Missing data on shift	-1.1814*	
Personal		
Black male		-.3189*
Black female		-.2710*
Motivation		
Self-esteem	.0163*	.0245*
Hourly rate of pay		-.0004*
Occupation		
Private household	-.7737	
Missing data on occupation		-1.5521
Education		
Training-related Concentrator	.1377†	.0049†
Nontraining-related Concentrator	.1961†	.3915*
Training-related Limited Concentrator	.0256†	.1400†
Nontraining-related Limited Concentrator	.1649†	.0158†
Training-related Concentrator/Explorer	.0728†	.1154†
Nontraining-related Concentrator/Explorer	.1284†	-.1353†
Training-related Incidental/Personal	.1484†	.1282†
Nontraining-related Incidental/Personal	.0574†	.1030†
Explorer	-.0347†	.2304
Missing pattern data	-.0066†	-.0050
df	2248	2619
R^2	.0491	.0576

NOTE: All unmarked coefficients are significant at the .05 level; * coefficients are significant at the .01 level; † coefficients are not statistically significant.

significantly less satisfaction. Thus, workers in these fields reported that their job conditions were less pleasant, more dangerous, and less healthy.

Increases in satisfaction with job rewards were associated with health insurance, life insurance, and paid vacation. In addition, less satisfaction was reported by black males, black females, and white females (those groups who traditionally receive lower pay than white males). The occupational areas (i.e., professional, managerial, clerical, and farm) were consistently associated with higher satisfaction when compared with laborers. Those not shown did not differ in satisfaction from laborers.

Interpersonal relationships were more satisfactory in smaller firms, and less satisfactory for black males and females. Occupational areas had little influence on this aspect of job satisfaction. Overall, satisfaction with interpersonal relationships was the most difficult aspect of job satisfaction to explain.

Job Stability and Vocational Education

To assess the possible association of job stability with vocational education, the inverse of stability--job mobility*--was defined. It took the form of a ratio between the number of jobs held and the number of weeks in the labor force. Values could range from zero to 1.00. Secondary vocational education patterns described in chapter 2 entered the equation as dummy variables subdivided into two sets of group membership. The groups were (1) those youths who had followed each particular pattern and were, for all or most of their jobs, in training-related employment; and (2) those who were not in training-related employment. Those youths whose jobs were classified equally between training-related and nontraining-related were placed in a tie category. The equation specified in chapter 2 for this objective was run for two groups: (1) those youths who had graduated by the first interview in 1979 and for whom job satisfaction scores were available in both 1979 and 1981, and (2) those youths who met these criteria but had also completed less than a year of postsecondary education.

The results of these analyses are detailed in Appendix E, table E-14. In general, secondary vocational education was neutral with respect to job mobility. For the larger sample, only

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*Although extreme mobility is probably detrimental, some mobility is usually associated with career development. No value judgment is appropriate for these findings.

Concentrator/Explorers who were not in training-related employment were associated with reduced job mobility. No other secondary vocational education pattern showed a significant association, either increasing or decreasing, as job mobility increased or decreased. For those in the more restricted sample, the same findings with regard to vocational education still occurred, except that for that group, there was no significant association for the Concentrator/Explorers.

The factors that increase mobility in both samples were higher socioeconomic status, higher job aspirations at age thirty-five (recall that the job content scale is inverse), higher satisfaction with human interactions, and working in a service occupation (the strongest association). The factors associated with decreased mobility in both samples were satisfaction with job rewards and experience. However, the positive coefficient for experience, squared, indicates that as experience accumulates, this association changes direction and begins to be associated with higher mobility. There were three additional significant associations in the larger sample: (1) being black, either male or female, decreased mobility; as did (2) satisfaction with on-the-job personal development.

All of these associations were small. The largest, being in a service occupation, represents only 0.6 percent change on the ratio of jobs held to weeks in the labor force. This represents--other things being equal, and on the average--about one job change for service workers every three years. It is only when multiple effects accumulate that career problems may appear.

Educational Expectations and Occupational Aspirations

This section of the research evaluated three hypotheses relating to changes in aspirations. The first was that initial aspirations for young people were likely to be higher than later ones. If aspirations began to conform to reality over time, there should be a predominance of negative change scores, which in turn would be reflected in a negative mean score (given the scale of change, with zero for no change, a positive value for positive change, and a negative value for negative change). This hypothesis was not supported by the data for educational expectations.

The mean change score for educational expectations as defined was 0.426, with a standard error of 0.073. The opposite situation holds for the occupational aspiration change. The mean change for these aspirations was -0.146, with a standard error of 0.051. Interpretation of these opposite trends is not readily obvious. It may simply reflect schooling as an alternative in a slack labor market. Further investigation is imperative.

The second hypothesis; that vocational education depresses aspirations, was tested by a regression equation that modeled a number of personal- and school-related variables that may explain changes in aspirations (see Appendix L, table E-15). The amount of variance for which these variables accounted was extremely small.

However, the effects of vocational education on educational aspirations, defined in the expectation form, are neutral and may be positive in these data. The results show that the factors of being black and scoring higher on the ASVAB* (an academic and vocational aptitude measure) are associated with increased expectations, while the factors of being in an academic curriculum in the ninth or tenth grade and having friends with higher aspirations are associated with lower expectations. Perhaps insufficient time has elapsed to adequately reflect changes that may be occurring.

In the case of occupational aspirations, the negative mean change score shows that there is an overall decrease in aspirations. The equation (shown in Appendix E, table E-15) does not explain enough variance to provide adequate interpretation. Whatever causes changes in occupational aspirations is not sufficiently represented in these presumably reasonable variables. Much of this question remains unresolved, although there are significant findings of interest.

The third hypothesis proposes that participation in an academic curriculum increases aspirations. The negative coefficient in the equation indicates the exact opposite for educational expectations. The academic curriculum coefficient in the occupational aspirations equation does not remotely approach significance.

Viewed together, these two analyses do not support the notion (see Grubb and Lazerson 1975) that vocational education suppresses the aspirations of young people. The opposite appears somewhat more likely. Although not conclusive, the strongest evidence favors a rejection of the position advanced by Grubb and Lazerson.

It should be noted that analysis of longitudinal change is extremely difficult. The models that were developed, although including the intuitively logical variables that might influence changes in aspiration, obviously do not include those operating in the real world. Alternative specifications did not produce meaningful improvements in the explanations. What can be said

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*The Armed Services Vocational Aptitude Battery.

with assurance is, that to the degree that changes in aspirations and the explanatory variables were adequately measured in NLS Youth, vocational education does not appear to have a depressing effect on educational expectations or occupational aspirations.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

The Study Context

This investigation of the effects of high school vocational education on job satisfaction stemmed from a paradox that arose in previous research findings concerning job satisfaction and earnings. Previous research reported that vocational graduates experience higher levels of job satisfaction, whereas they did not experience a significant earnings advantage over their non-vocational peers (particularly for males). The results of the present study indicate that job satisfaction is a complex phenomenon, the components of which are differentially related to completion of vocational training.

This study produced a number of policy relevant and confirmatory findings. Its utilization of a large scale longitudinal data base, the NLS Youth, adds credibility to the results. Also, the confirmatory nature of some of these findings, especially the factors of job satisfaction, strongly suggest construct validity for the factors. Never-the-less, to avoid over generalization and premature closure on the analysis, certain limitations should be specifically recognized.

First, the sample included only those youths who had graduated from high school and were fifteen to twenty-three years of age, thus limiting their possible labor market experience. Second, although data on job satisfaction were available from those in the sample who were self-employed, those data were not directly comparable, thereby further limiting the sample. Also, because the NLS Youth survey was not specifically designed to evaluate job satisfaction, certain items of specific interest were not included.

This led to the third constraint. It was not possible to test hypotheses generated by theories such as Lawler's (1973) (e.g., questions dealing with perceived equity of job outcomes), which was reviewed in chapter 1. Also, the absence of similar but alternative measurements of certain interesting variables, such as reservation wage, did not permit these variables to be analyzed in this study as components of job satisfaction. The single measures available for these variables did not have sufficient communality with other data to permit them to define a factor. Within these limitations, however, a number of significant findings still emerged.

General Conclusions

The principal general conclusion is that the multiple, relatively independent factor structure of job satisfaction was clearly supported. This structure parallels rather closely the four-factor structure identified by Weitzel, et al. (1973). The factors that emerged in this study were: (1) satisfaction with personal on-the-job development, that is, the use and development of skills and a general overall statement of satisfaction; (2) satisfaction with working conditions; (3) satisfaction with job rewards, including security, pay, and chance for advancement; and (4) satisfaction with human interactions, including both supervisors and coworkers.

As will be seen in the subsequent discussion of the correlates of these four forms of job satisfaction, secondary vocational education does not have a uniformly clear association with all forms of job satisfaction. This may be due to a change in the population from the earlier studies, a change in impact of vocational education, or the more detailed analysis of differing forms of job satisfaction. It is plausible that all three of these reasons are operating. The multiple forms of satisfaction seem to be the most likely candidates, because consistencies are observable between the 1979 and 1980 data, and differences are observed between the kinds of satisfaction.

Objective 1: The Correlates of Job Satisfaction

For the first factor, personal on-the-job development, the major explainers of associated variance were variables in the specific work place (e.g., small firm, large firm) and the general occupational category (e.g., farming, clerical). The largest associations were found for occupations, all of which, if significant at all, increased job satisfaction. The conditions in the work place were mixed. Smaller firms tended to be associated with more satisfaction. Unions and non-day or irregular shifts were associated with decreased satisfaction. As hours worked increased and hourly rate of pay also increased, satisfaction tended to increase. The match between current job and aspirations is also strongly and consistently associated with job satisfaction.

The effects of vocational education on this form of job satisfaction are probably indirect. Young workers trained in secondary vocational education programs tended to be found more frequently in smaller firms. Greater portions of them tended to be in the jobs to which they aspired than those who had less or no vocational training. Finally, the occupations for which secondary vocational education trains young people (e.g., farming, clerical, distributive, or sales) are among those with strong positive associations with this form of job satisfaction.

The second form, satisfaction with working conditions, showed direct relationships with secondary vocational education. The preponderance of evidence supports the conclusion that youths with secondary vocational concentration tend to be found in jobs with healthier, safer, and more pleasant working conditions (as seen by the young workers themselves). Other correlates include job characteristics, whereby smaller firms are viewed as more satisfactory than the very large ones, and unions are found where conditions are less satisfactory. Longer hours, together with evening shifts, are associated with lower satisfaction. Sex is also strongly associated with this form of satisfaction. Women, regardless of race, report higher levels of satisfaction..

Although satisfaction with working conditions showed the strongest positive and direct association with secondary vocational education, it is necessary to point out one instance where the effect may be indirectly negative. If a young worker had been vocationally trained for a craft occupation and is working in that field, it could be argued that the worker had been channeled into an occupation which is associated with less satisfactory working conditions. This association is, however, not as strong as the association of higher satisfaction with other occupations for which workers are also prepared by vocational education, such as sales, clerical, and managerial. In any event, because craft occupations are essential to society, the emphasis should be upon improving the occupation rather than steering people away from it.

Job rewards are the third form of job satisfaction identified in this study. They include pay, security, and chance for advancement. Vocational education has no observable direct effects in these data. Job characteristics and occupations count the most in these associations. The effect of job characteristics differs from the other forms, with the very large firms tending to be the most satisfactory places. Fringe benefits are also associated with higher satisfaction, but unions appear to have only an indirect effect. The negative association observed for the presence of unions* for other forms of job satisfaction is missing here, but the positive aspects of unionization appear in the positive association of hourly rate of pay with job rewards. Certain occupations remain strong and positive in their associations with satisfaction with job rewards. The job rewards are clearly not monetary, because many tend to be low-paying. These occupations are in sales, clerical, farming, and private household areas.

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*There is no evidence that unions cause dissatisfaction; rather that they tend to be found in work situations where dissatisfaction occurs.

The fourth form of job satisfaction--human interactions--was not well-explained by the data that were identified for the equation. Only two consistent significant associations emerge. They are: (1) small firm size, as a job characteristic; and (2) the characteristics of individual self-esteem. While vocational education appears to be associated with small firm size, there is no apparent evidence available in these analyses that supports an indirect effect through self-esteem. Therefore, this form of job satisfaction in these data is simply not well-explained, although it is clearly present.

The conclusion for this objective, determining the correlates of job satisfaction, can best be summarized by stating that the major influences appear to be job characteristics and occupation. Secondary vocational education is directly associated in a positive way with working conditions, and may have indirect effects through occupation, firm size, and the match between aspiration and the workers' current jobs. These associations, both direct and indirect, are all positive (with one exception, as noted).

Objective 2: Job Satisfaction and Other Nonmonetary Correlates of Hourly Rate of Pay

The primary interests for this objective are the forms of job satisfaction. An adequate specification of the structural equation (i.e., a reasonable approximation of how the associations operate in the real world) requires consideration of many other conditions. These have been extensively discussed elsewhere for these data (e.g., Grasso and Shea 1979; Campbell et al. 1981; Gardner, Campbell, and Seitz 1982) and are not reviewed here. It is noted, however, that many of the occupations that had strong and positive associations with job satisfaction (including satisfaction with job rewards) are negatively associated with hourly rate of pay. For example, farming is associated with approximately 13 cents per hour less when compared to earnings of laborers, but farmers report high levels of job satisfaction with job rewards and personal on-the-job development.

Independent of occupations, however, are both job rewards and personal on-the-job development, which appear to an increasing degree where pay is higher. On the other hand, as jobs increase in safety, pleasantness, and healthiness (work conditions), pay tends to decrease. Thus, at least the latter form of job satisfaction appears to offset less satisfaction with monetary rewards. There is no consistent direct or indirect effect on hourly rate of pay for secondary vocational education. In 1980, but not in 1979, somewhat lower rates of pay are associated with the lower levels of concentration in vocational education. These lower rates of pay move higher as concentration in vocational education increases. The difference from the reference

group, laborers, disappears for Concentrators. This suggests that concentration could conceivably partially offset the tendency of vocational graduates to work in lower paying occupations (clerical, for example).

In summary, job satisfaction does have an association with hourly rate of pay, but its direction depends on the type of satisfaction. These associations are generally much smaller than those of job characteristics, personal characteristics, or occupations.

Objective 3: Job Satisfaction and Training-related Employment

The findings for this objective can be summarized quite briefly and are related directly to the multidimensional nature of job satisfaction. In the area of satisfaction with personal on-the-job development, Concentrators and Limited Concentrators who were in training-related employment reported significantly higher satisfaction. In the other three areas of satisfaction, youths who were classified in these two patterns reported higher satisfaction if they were not in training-related employment. Thus, there appears to be a trade-off between working in an area for which one is trained and acceptance of other, less satisfactory conditions.

Objective 4: Job Stability and Vocational Education

The significant explanatory variables for job mobility--the inverse of stability--showed very small effects, and with one exception, vocational education was not among them. Only Concentrator/Explorers in unrelated employment were associated with lower mobility. Thus, for these data, the only conclusion to be drawn about the effect of vocational education on job stability is that it is neutral.

Educational Expectations and Occupational Aspirations

Three hypotheses were considered. The first postulated that initial aspirations for young people are likely to be higher than those they hold after accumulated experience has better defined the actualities of some goals. This hypothesis was not supported for education variables, but was supported for occupation.

The second hypothesis suggested that vocational education depresses educational and occupational aspirations. The amount of variation in aspirations explained in this analysis was extremely small, but the relevant evidence appeared to point in the opposite direction.

The third hypothesis suggests that being in an academic curriculum leads to higher aspirations. The opposite effect appeared to be true for educational aspirations, but no effect was present for occupational aspirations. Changes in curriculum which occur after the tenth grade might clarify this finding. More investigation is needed to determine the effects of curriculum on aspirations.

Policy Implications

Earlier in this paper we identified the context of the study, including its strengths and limitations. At this point it appears appropriate to identify the context in which policy implications must be considered. The policy context is far-reaching in its consequences. The relationship between vocational education and satisfaction on the job is but one factor within it, but policy relating to this factor will tend to push the society in one direction or another, toward humanization or dehumanization, toward exploitation or cooperation, toward improving the quality of life or diminishing it. The fundamental element in the policy context is the differential valuing of the job or the worker.

Most jobs for which vocational education trains workers are currently quite necessary in this society. Many, but not all, will be changed as production becomes more automated, but many of the jobs will remain in some form, barring a castastrophic reduction of the human species. Independent of this essentiality of the job is the value of the workers beyond their performance of the job. People are neither peons of the state nor pawns of industry. The quality of their lives must be considered and nurtured. Nor can they be irresponsible regarding the needs of society of which they are a part. Therefore, the two questions posed at the beginning of this paper cannot be answered in a simple either/or manner. If policy operates through vocational education to train docile but efficient workers, then that policy will diminish the quality of human life. If policy operates through vocational education to steer people away from essential but more difficult jobs, or to create unrealizable aspirations, then society will suffer serious inefficiencies and human life will also be diminished. Policy must therefore seek a balance which respects both the direct and indirect consequences of its implementations. Although the vocational education delivery system cannot provide all of the activities necessary for improvements, it can provide some and also build awareness of others which must be provided by other institutions in society.

Within this context, the activities which should be encouraged by policymakers centers on the need to (1) improve assessment of the effects of vocational education, (2) improve career counseling, (3) increase opportunities for work experience, and (4) provide appropriate support for further research.

Policy Implications for the Congress

The current legislation suggests two criteria (i.e., the degree of training-related placements and employer satisfaction) to assess the effects of vocational education. Recent research in the policy area has focused on earnings as an important measure of effects. The present study suggests that individuals will trade off the opportunity for satisfaction with a job's monetary rewards or working conditions to find personal satisfaction on the job. The emphasis on earnings as a pivotal outcome and a basis for judging the worth of vocational education effectively ignores the validity of the people's freedom to choose one type of satisfaction over another.

In addition, previous research that reported no earnings advantage for male vocational graduates was based on the hourly rate of pay. Present research indicates an annual earnings advantage for male vocational graduates that results from more hours worked per week and more weeks worked per year (Gardner, Campbell, and Seitz 1982). In the present study, working more hours per week was also associated with higher satisfaction levels. Perhaps this represents another trade-off that vocational graduates are willing to make in order to work in their chosen field. Congress should, therefore, assure that the evaluative criteria written into law should be broad enough to fit the complexity of vocational education.

Policy Implications for Teachers and Counselors

The discussion of trade-offs between forms of job satisfaction emphasizes the importance of improving career counseling in the high schools. Counselors and teachers should give young people a realistic picture of the occupation for which they are being trained, both in terms of job duties as well as in terms of the future that is commonly associated with such a job, including earnings progression, promotions, and career change opportunities. An increase in the availability of work experience is one avenue that can help young people obtain a more realistic view of the occupations for which they are training.

Policy Implications for the U.S. Department of Education

Finally, support is needed to conduct additional research on job satisfaction and its particular relationship to vocational education. The meaning of job satisfaction requires additional research to determine its multi-faceted character more precisely. Interviews are needed to determine how individuals interpret the rating scales used to assess job satisfaction. Do the rating scales share a common meaning or is there much diversity in respondents' interpretations?

Future research on job satisfaction should be more closely tied to a theoretical framework.* Which framework is more appropriate, however, and under which conditions? Determining this may shed light on the factors that contribute to job satisfaction and aspirations. The present analyses, particularly of the interpersonal relationships and aspirations, account for very little of the variance. What does account for it? A theoretical framework may suggest new variables that should be considered and may allow expansion of this investigation to determine the relationship between satisfaction and aspirations.

What are the dynamics that are operating in a vocational education classroom and in a job setting that influence an individual's level of satisfaction? Improved research into the effects of vocational education and job satisfaction can provide evidence concerning the consequences of satisfaction levels. The U.S. Department of Education should plan its budgets to support continued inquiry into the causes and consequences of job satisfaction, and the role of vocational education in this regard.

*In a personal communication, Professor Rene Dawis suggested that the Porter (1961) and Lawler (1973) development of a work adjustment theory may be the appropriate approach. The present findings fit within such a framework.

APPENDIX A

NLS YOUTH ITEMS USED FOR SELF-ESTEEM SCALE

NLS YOUTH ITEMS USED FOR SELF-ESTEEM SCALE

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I feel that I'm a person of worth, at least on an equal basis with others.	1	2	3	4
2. I feel that I have a number of good qualities.	1	2	3	4
3. All in all, I am inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think I am no good at all.	1	2	3	4

APPENDIX B

NLS YOUTH ITEMS USED FOR JOB SATISFACTION SCALES

NLS YOUTH ITEMS USED FOR JOB SATISFACTION SCALES

		Very True	Somewhat True	Not Too True	Not At All True
(1)	You are given a chance to do the things you do best. . .	4	3	2	1
(2)	The physical surroundings are pleasant. . .	4	3	2	1
(3)	The skills you are learning would be valuable in getting a better job. . .	4	3	2	1
(4)	The job is dangerous. . .	4	3	2	1
(5)	You are exposed to unhealthy conditions. . .	4	3	2	1
(6)	The pay is good. . .	4	3	2	1
(7)	The job security is good. . .	4	3	2	1
(8)	Your coworkers are friendly. . .	4	3	2	1
(9)	Your supervisor is competent in doing the job. . .	4	3	2	1
(10)	The chances for promotion are good. . .	4	3	2	1

GLOBAL SATISFACTION ITEM

(11) How do you feel about the job you have now? Do you like it very much, like it fairly well, dislike it somewhat, or dislike it very much?

Like it very much. 1
Like it fairly well. 2
Dislike it somewhat. 3
Dislike it very much 4

APPENDIX C

FACTOR ANALYSIS OF JOB SATISFACTION ITEMS

TABLE C-1

FACTOR ANALYSIS OF JOB SATISFACTION ITEMS--1979 SURVEY

	Estimated Communality	Factor	Eigenvalue	Cumulative Percent
Chance to do things you do best. .	0.34327	1	3.15143	28.6
Physical surroundings are pleasant. . .	0.31607	2	1.70069	44.1
Skills learned valuable. . .	0.28671	3	1.04885	53.6
Job is dangerous. . .	0.25971	4	1.00573	62.8
Exposed to unhealthy conditions. . .	0.31686	5	0.71927	69.3
Pay is good. . .	0.23000	6	0.66019	75.3
Job security is good. . .	0.22497	7	0.60106	80.8
Coworkers are friendly. . .	0.14969	8	0.59110	86.2
Supervisor is competent. . .	0.15790	9	0.56354	91.3
Chances for promotion good. . .	0.27242	10	0.49738	95.8
Global job satisfaction. . .	0.35091	11	0.46073	100.0

Factor Matrix Using Principal Factor	Factor 1	Factor 2	Factor 3	Factor 4
Chance to do things you do best. . .	0.63223	0.14954	-0.36757	-0.00196
Physical surroundings are pleasant. . .	0.55618	-0.29881	-0.08532	0.03202
Skills learned valuable. . .	0.55622	0.12940	-0.26063	-0.04280
Job is dangerous. . .	-0.08116	0.60168	0.00140	0.11761
Exposed to unhealthy conditions. . .	-0.23602	0.75797	-0.02574	0.15805
Pay is good. . .	0.47627	0.20843	0.26776	-0.20649
Job security is good. . .	0.48345	0.13510	0.31834	-0.13673
Coworkers are friendly. . .	0.38154	-0.13609	0.16895	0.43888
Supervisor is competent. . .	0.39683	-0.08164	0.16829	0.24741
Chances for promotion good. . .	0.54132	0.22035	0.10444	-0.16542
Global job satisfaction. . .	-0.65805	-0.04234	0.07652	-0.06450

Varimax Rotated Factor Matrix	Factor 1	Factor 2	Factor 3	Factor 4
Chance to do things you do best. . .	0.71762	0.01553	0.16957	0.11496
Physical surroundings are pleasant. . .	0.39688	-0.38002	0.15827	0.29275
Skills learned valuable. . .	0.58755	-0.00143	0.20688	0.08873
Job is dangerous. . .	0.02954	0.61252	0.06937	-0.03965
Exposed to unhealthy conditions. . .	-0.03528	0.80189	-0.00900	-0.11729
Pay is good. . .	0.17315	0.03305	0.58858	0.08430
Job security is good. . .	0.12918	-0.01634	0.56976	0.17445
Coworkers are friendly. . .	0.10872	-0.07366	0.06926	0.60267
Supervisor is competent. . .	0.13327	-0.08359	0.18420	0.44159
Chances for promotion good. . .	0.33459	0.04526	0.50795	0.08855
Global job satisfaction. . .	-0.51037	0.07293	-0.30146	-0.29693

TABLE C-2

FACTOR ANALYSIS OF JOB SATISFACTION ITEMS--1980 SURVEY

	Estimated Communality	Factor	Eigenvalue	Cumulative Percent
Chance to do things you do best. . .	0.32021	1	3.19850	29.1
Physical surroundings are pleasant. . .	0.30405	2	1.59804	43.6
Skills learned valuable. . .	0.26657	3	1.05633	53.2
Job is dangerous. . .	0.24672	4	0.95130	61.9
Exposed to unhealthy conditions. . .	0.29059	5	0.74598	68.6
Pay is good. . .	0.21010	6	0.70001	75.0
Job security is good. . .	0.21718	7	0.61295	80.6
Coworkers are friendly. . .	0.17098	8	0.60217	86.0
Supervisor is competent. . .	0.20832	9	0.53259	90.9
Chances for promotion good. . .	0.25254	10	0.51711	95.6
Global job satisfaction. . .	0.33844	11	0.48498	100.0

Factor Matrix Using Principal Factor	Factor 1	Factor 2	Factor 3	Factor 4
Chance to do things you do best. . .	0.61405	0.12896	-0.22266	0.19673
Physical surroundings are pleasant. . .	0.57291	-0.23681	-0.02681	0.09447
Skills learned valuable. . .	0.52250	0.19557	-0.22457	0.15585
Job is dangerous. . .	-0.20250	0.57663	0.08058	0.10160
Exposed to unhealthy conditions. . .	-0.32664	0.67295	0.10605	0.13451
Pay is good. . .	0.43470	0.29580	0.02172	-0.37706
Job security is good. . .	0.48331	0.14173	0.07396	-0.22797
Coworkers are friendly. . .	0.40463	-0.09023	0.45408	0.15519
Supervisor is competent. . .	0.46025	-0.05252	0.33155	0.05671
Chances for promotion good. . .	0.51331	0.20758	-0.02001	-0.14191
Global job satisfaction. . .	-0.64183	-0.07467	0.07926	-0.10313

Varimax Rotated Factor Matrix	Factor 1	Factor 2	Factor 3	Factor 4
Chance to do things you do best. . .	0.65304	-0.06417	0.18855	0.12582
Physical surroundings are pleasant. . .	0.40168	-0.36746	0.12747	0.28516
Skills learned valuable. . .	0.58512	0.01301	0.19837	0.06395
Job is dangerous. . .	-0.01054	0.62095	0.03326	-0.05946
Exposed to unhealthy conditions. . .	-0.07195	0.75796	-0.01841	-0.09419
Pay is good. . .	0.15944	0.04930	0.62248	0.06142
Job security is good. . .	0.20838	-0.05764	0.47804	0.18934
Coworkers are friendly. . .	0.10560	-0.07495	0.07968	0.61565
Supervisor is competent. . .	0.16410	-0.10577	0.19035	0.50337
Chances for promotion good. . .	0.33183	-0.00504	0.44381	0.14145
Global job satisfaction. . .	-0.54275	0.11568	-0.26522	-0.23693

TABLE C-5

FACTOR ANALYSIS OF JOB SATISFACTION ITEMS--1981 SURVEY

	Estimated Communality	Factor	Eigenvalue	Cumulative Percent
Chance to do things you do best. .	0.35351	1	3.32943	30.3
Physical surroundings are pleasant. . .	0.34177	2	1.55677	44.4
Skills learned valuable. .	0.25952	3	1.03260	53.8
Job is dangerous. . .	0.25232	4	0.98440	62.8
Exposed to unhealthy conditions. . .	0.29460	5	0.75691	69.6
Pay is good. . .	0.22486	6	0.67710	75.8
Job security is good. . .	0.19959	7	0.59827	81.2
Coworkers are friendly. . .	0.17565	8	0.58919	85.6
Supervisor is competent. . .	0.20866	9	0.53210	91.4
Chances for promotion good. . .	0.24076	10	0.47844	95.8
Global job satisfaction. .	0.41516	11	0.46477	100.0

Factor Matrix Using Principal Factor	Factor 1	Factor 2	Factor 3	Factor 4
Chance to do things you do best. . .	0.63661	0.12433	-0.35960	0.02086
Physical surroundings are pleasant. . .	0.60524	-0.23191	-0.04169	0.09497
Skills learned valuable. . .	0.51449	0.11199	-0.23904	-0.10843
Job is dangerous. . .	-0.21595	0.58594	-0.01094	0.08642
Exposed to unhealthy conditions. . .	-0.33403	0.68457	-0.06900	0.14278
Pay is good. . .	0.48689	0.17182	0.10442	-0.10773
Job security is good. . .	0.43162	0.20242	0.28254	-0.23485
Coworkers are friendly. . .	0.43198	-0.00976	0.20840	0.40159
Supervisor is competent. . .	0.47088	0.00326	0.19593	0.22382
Chances for promotion good. . .	0.48116	0.24891	0.23291	-0.20532
Global job satisfaction. . .	-0.70842	-0.09977	0.16290	-0.03547

Varimax Rotated Factor Matrix	Factor 1	Factor 2	Factor 3	Factor 4
Chance to do things you do best. . .	0.70644	-0.04283	0.14840	0.16604
Physical surroundings are pleasant. . .	0.39456	-0.36797	0.14773	0.34344
Skills learned valuable. .	0.53915	-0.05770	0.22199	-0.05338
Job is dangerous. . .	-0.04264	0.62559	0.04294	-0.05021
Exposed to unhealthy conditions. . .	-0.06512	0.76937	-0.04587	-0.03422
Pay is good. . .	0.28204	-0.01991	0.42379	0.17190
Job security is good. . .	0.12489	-0.01889	0.57761	0.11254
Coworkers are friendly. . .	0.12531	-0.05744	0.11218	0.59985
Supervisor is competent. . .	0.16769	-0.09840	0.22677	0.47010
Chances for promotion good. . .	0.20079	0.01998	0.57445	0.13844
Global job satisfaction. . .	-0.60776	0.09807	-0.27968	-0.28703

APPENDIX D

EXPLANATORY VARIABLES IN REGRESSIONS

EXPLANATORY VARIABLES IN REGRESSIONS

Elements of C:

FIRM 16 EMPLOYEES	= 1 if respondent working in a firm of 16 or less employees
FIRM 150 EMPLOYEES	= 1 if respondent working in a firm of 17 to 150 employees
FIRM 1,200 EMPLOYEES	= 1 if respondents working in a firm of 151 to 1,200 employees
UNION	= 1 if wage on respondent's job is established through collective bargaining
EVENING SHIFT	= 1 if respondent working evening shift
NIGHT SHIFT	= 1 if respondent working night shift
SPLIT SHIFT	= 1 if respondent working split shift
OTHER SHIFT	= 1 if respondent working some other shift
FULLTIME	= 1 if respondent working 35 or more hours per week
HEALTH INSURANCE	= 1 if respondent's employer offered health insurance
LIFE INSURANCE	= 1 if respondent's employer offered life insurance
PAID VACATION	= 1 if respondent's employer offered paid vacation

Elements of E:

CONCENTRATOR	= 1 if respondent was classified as a Concentrator
LIM CONCENTRATOR	= 1 if respondent was classified as a Limited Concentrator
CONCENTRATOR/EXP	= 1 if respondent was classified as a Concentrator/Explorer
EXPLORER	= 1 if respondent was classified as an Explorer
INCIDENTAL/PERSONAL	= 1 if respondent was classified as Incidental/Personal
NO PATTERN	= 1 if respondent's secondary vocational experience was unclassifiable
ACADEMIC NO VOC	= 1 if respondent reported his or her secondary curriculum to be college preparatory and she or he had not taken any vocational classes
TR CONCENTRATOR, TR LIM CONCENTRATOR, TR CONCENTRATOR/EXP, TR INCIDENTAL/PERSONAL	= 1 if respondent was employed in a training-related job and was classified as a Concentrator, Limited Concentrator, Concentrator/Explorer, or an Incidental/Personal participant in secondary vocational education
NTR CONCENTRATOR, NTR LIM CONCENTRATOR, NTR CONCENTRATOR/EXP, NTR INCIDENTAL/PERSONAL	= 1 if respondent was not employed in a training-related job and was classified as a Concentrator, Limited Concentrator, Concentrator/Explorer, or an Incidental/Personal participant in secondary vocational education
TR INCONSISTENT	= 1 if respondent's employment in training-related jobs was not consistent across survey years

EXPLANATORY VARIABLES
(Continued)

Elements of P:

SES	= a continuous, composite variable indicating socioeconomic status at age fourteen

Elements of M:

ASPIRED OCC MATCH	= 1 if respondent's current occupational area (e.g., professional, managerial) matched the occupational area to which she or he aspires at age thirty-five
SELF-ESTEEM	= a continuous scale indicating respondent's self-esteem at the 1980 interview

Elements of F:

PROFESSIONAL, MANAGERIAL, SALES, CLERICAL, CRAFTS, OPERATIVE, FARM, SERVICE, PRIVATE HOUSEHOLD	= 1 if respondent's current job was classified in the appropriate occupational category

Elements of TRE:

TRAIN-RELATED	= 1 if respondent's current job was related to his or her secondary vocational participation

Elements of EL:

HGC 13, HGC 14, HGC 15, HGC 16, HGC 17	= 1 if respondent's highest grade of school completed was 1, 2, 3, 4, or more than 4 years beyond high school graduation

Elements of W:

NORTHEAST	= 1 if respondent currently resides in the Northeast
SOUTH	= 1 if respondent currently resides in the South
WEST	= 1 if respondent currently resides in the West
WORK EXPER	= months of potential work experience since high school graduation

NOTE: Unless otherwise indicated, all variables pertain to the specific survey year. Variables for missing data are prefixed with the symbol MD (e.g., MD OCCUPATION).

APPENDIX E

CORRELATES OF JOB SATISFACTION, JOB MOBILITY, AND EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS

TABLE E-1

CORRELATES OF JOB SATISFACTION WITH PERSONAL ON-THE-JOB DEVELOPMENT

(Full Equation JS_1)

Variable	Regression Coefficients 1979	1980
Intercept	5.7889**	6.0257**
Small firm	1.0549**	0.7087**
Medium firm	0.7531**	0.2646
Large firm	0.5168*	0.1075
Missing data on firm	0.8974**	0.6488**
Union	-0.3027*	-0.0644
Missing data on union	0.1339	0.0274
Evening shift	-0.3929**	-0.4687**
Night shift	-0.3299	-0.0749
Split shift	-0.3077	-0.6204**
Variable shift	-0.1774	-0.0442
Missing data on shift	-0.5805	-0.1433
Hours per week	0.4229**	0.2495*
Missing data on hours per week	0.5263*	
Health insurance	0.1520	0.0960
Life insurance	0.1934	0.1767
Paid vacation	0.3121**	0.1896
Missing data on health insurance	-0.9996*	0.3852
Missing data on life insurance	0.7539	0.3649
Missing data on paid vacation	0.6428	0.1001
Concentrator	-0.0106	0.2235
Limited Concentrator	0.0335	0.2097
Concentrator/Explorer	-0.1498	0.0921
Explorer	-0.0822	0.5205
Incidental/Personal	-0.2945	0.3025
Missing data on patterns	-0.2381	0.2611
Academic no vocational	-0.2848	0.2812
Hispanic male	0.2707	0.0833
Black male	-0.0566	-0.3683**
Hispanic female	0.2975	0.2677
Black female	0.0885	-0.0174
White female	0.1600	0.2452*
SES	0.0012	-0.0048*
Self-esteem	0.0157	0.0442**
Occupation aspiration match	0.7326**	0.5287**
Missing data on match	0.0977	-0.0585
Highest grade completed 13	0.0051	0.1051
Highest grade completed 14	-0.0264	0.0363

TABLE E-1
(Continued)

Variable	Regression Coefficients 1979	1980
Highest grade completed 15	-0.3147	-0.1307
Highest grade completed 16	0.5695	-0.3899*
Highest grade completed 17	0.2372	-0.5506
Age	0.0198	-0.0276
Professional	2.0224**	1.6188**
Managerial	1.0114**	1.4134**
Sales	0.9271**	0.9323**
Clerical	0.7533**	0.7870**
Crafts	1.0386**	1.0777**
Operative	0.1372	0.1371
Farm	1.5629**	0.5386
Service	0.3543	0.6103**
Private household	0.1047	1.1420
Missing data on occupation	2.0858	0.3440
Hourly rate of pay	0.0007*	0.0009**
Training-related placement	0.1513	0.2451*
df	2250	2621
R^2	.1826	.1569

*Chance probability < .05
**Chance probability < .01

TABLE E-2

CORRELATES OF JOB SATISFACTION WITH WORKING CONDITIONS

(Full Equation JS_2)

Variable	Regression Coefficients 1979	1980
Intercept	8.7961**	6.6643**
Small firm	0.6221**	0.6832**
Medium firm	0.8311**	0.5184**
Large firm	0.7263**	0.5474**
Missing data on firm	0.4564*	0.3951*
Union	-0.7465**	-0.3718**
Missing data on union	-0.0867	0.1348
Evening shift	-0.3312*	-0.2930*
Night shift	-0.2197	-0.2098
Split shift	-0.0967	0.1889
Variable shift	-0.1399	-0.1036
Missing data on shift	-0.8800	0.0611
Hours per week	-0.3225**	-0.4030**
Missing data on hours per week	-0.4706*	
Health insurance	0.0328	-0.2411*
Life insurance	-0.0661	-0.0484
Paid vacation	-0.0358	0.0691
Missing data on health insurance	-0.2199	-0.5354
Missing data on life insurance	0.2838	-0.1320
Missing data on paid vacation	-0.1155	0.4612
Concentrator	0.6251**	0.3514
Limited Concentrator	0.5497**	0.0821
Concentrator/Explorer	0.1227	0.1007
Explorer	0.5439	0.0606
Incidental/Personal	0.2152	0.1601
Missing data on patterns	0.2892	0.1544
Academic no vocational	0.1278	-0.4011
Hispanic male	0.2753	0.0369
Black male	0.0370	-0.0494
Hispanic female	0.6167**	0.5650**
Black female	0.4918**	0.3997**
White female	0.4410**	0.2961**
SES	0.0035	0.0034
Self-esteem	0.0369**	0.0563**
Occupation aspiration match	0.1289	0.1918*
Missing data on match	0.1364	0.0782
Highest grade completed 13	0.0955	0.1500
Highest grade completed 14	0.0101	0.1836
Highest grade completed 15	0.4124*	-0.4638*
Highest grade completed 16	0.4426	0.4303*

TABLE E-2
(Continued)

Variable	Regression Coefficients 1979	1980
Highest grade completed 17	0.7819	1.4501
Age	-0.0833	0.0319
Professional	0.5691*	0.5257*
Managerial	1.5982**	1.2524**
Sales	1.4906**	1.3590**
Clerical	1.3450**	1.2676**
Crafts	-0.5350**	-0.6554**
Operative	-0.5162**	-0.3563*
Farm	0.4531	0.1882
Service	0.3506*	0.4414**
Private household	2.0794**	1.6087*
Missing data on occupation	0.0966	-0.3698
Hourly rate of pay	-0.0004	-0.0009**
Training-related placement	-0.1808	0.0083
df	2250	2621
R^2	.2946	.2678

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-3

CORRELATES OF JOB SATISFACTION WITH JOB REWARDS

(Full Equation JS_3)

Variable	Regression Coefficients 1979	1980
Intercept	7.7272**	7.3140**
Small firm	-0.0682	-0.2464
Medium firm	-0.1597	-0.3558*
Large firm	-0.4946*	-0.0594
Missing data on firm	-0.5413*	-0.2169
Union	0.1936	0.0909
Missing data on union	0.1103	0.3791
Evening shift	-0.1911	-0.0964
Night shift	-0.1658	-0.1758
Split shift	0.1223	0.0516
Variable shift	-0.2066	0.0829
Missing data on shift	-0.7318	0.8008
Hours per week	0.2531*	0.2172
Missing data on hours per week	0.2215	
Health insurance	0.3402**	0.4260**
Life insurance	0.3465**	0.4021**
Paid vacation	0.5598**	0.3918**
Missing data on health insurance	-0.4491	-0.2076
Missing data on life insurance	0.2510	0.4736
Missing data on paid vacation	0.7330	0.1522
Concentrator	0.2244	0.3566
Limited Concentrator	0.2798	0.3195
Concentrator/Explorer	-0.0968	0.4066
Explorer	-0.3733	0.2099
Incidental/Personal	-0.0837	0.2990
Missing data on patterns	-0.1204	0.1314
Academic no vocational	-0.4515	-0.0942
Hispanic male	-0.1111	-0.1238
Black male	-0.3354*	-0.1885
Hispanic female	0.0250	-0.0798
Black female	-0.2751	-0.5993**
White female	-0.2123	-0.2277*
SES	0.0033	-0.0012
Self-esteem	0.0303**	0.0345**
Occupation aspiration match	0.3457**	0.0813
Missing data on match	-0.1514	-0.1810
Highest grade completed 13	0.0716	0.0903
Highest grade completed 14	-0.0799	-0.0589
Highest grade completed 15	-0.0310	-0.1857
Highest grade completed 16	-0.1537	-0.0771

TABLE E-3
(Continued)

Variable	Regression Coefficients 1979	1980
Highest grade completed 17	0.0013	-1.1598
Age	-0.1035**	-0.0824**
Professional	0.5816*	0.4634*
Managerial	0.8221**	1.0301**
Sales	0.6459**	0.2794
Clerical	0.4330*	0.5760**
Crafts	0.3025	0.1449
Operative	0.1068	0.1582
Farm	1.2401**	0.8139*
Service	0.1956	0.2524
Private household	-0.1653	1.6427*
Missing data on occupation	2.0478	0.5850
Hourly rate of pay	0.0029**	0.0018**
Training-related placement	-0.0314	-0.0612
df	2250	2621
R^2	.1961	.1515

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-4

CORRELATES OF JOB SATISFACTION WITH INTERPERSONAL RELATIONSHIPS

(Full Equation JS_4)

Variable	Regression Coefficients 1979	1980
Intercept	7.1046**	6.8428**
Small firm	0.3362**	0.2901**
Medium firm	0.2277*	0.1577
Large firm	0.0823	0.1416
Missing data on firm	0.3106**	0.2862**
Union	-0.1740*	-0.0082
Missing data on union	-0.0395	0.0782
Evening shift	-0.0378	-0.0748
Night shift	-0.0977	-0.0246
Split shift	-0.0400	-0.1370
Variable shift	0.0309	0.0099
Missing data on shift	-1.2058**	-0.7972
Hours per week	-0.0563	-0.0617
Missing data on hours per week	0.1218	
Health insurance	0.0475	-0.0121
Life insurance	-0.0139	-0.0048
Paid vacation	0.0065	0.0332
Missing data on health insurance	-0.2269	0.0542
Missing data on life insurance	0.3513	0.1250
Missing data on paid vacation	0.2105	-0.1521
Concentrator	0.1096	0.0073
Limited Concentrator	0.0331	-0.0218
Concentrator/Explorer	0.0486	-0.1070
Explorer	-0.1009	0.1462
Incidental/Personal	0.0366	-0.0353
Missing data on patterns	-0.0754	-0.0904
Academic no vocational	-0.2341	-0.1462
Hispanic male	0.0264	-0.0198
Black male	-0.0963	-0.3149**
Hispanic female	0.0744	0.0950
Black female	-0.0623	-0.2659**
White female	0.0404	-0.0363
SES	0.0008	0.0012
Self-esteem	0.0164**	0.0246**
Occupation aspiration match	0.0213	0.0925
Missing data on match	-0.0153	-0.0148
Highest grade completed 13	-0.0544	0.0264
Highest grade completed 14	0.0189	0.0156
Highest grade completed 15	-0.0458	-0.1393
Highest grade completed 16	-0.0948	-0.0010

TABLE E-4
(Continued)

Variable	Regression Coefficients 1979	1980
Highest grade completed 17	0.4407	0.2309
Age	-0.0379	-0.0176
Professional	0.2282	0.0844
Managerial	0.0724	0.0863
Sales	0.1356	0.1449
Clerical	0.1303	0.0063
Crafts	0.1556	-0.0230
Operative	0.0991	-0.0652
Farm	0.2140	-0.2075
Service	-0.0651	-0.0145
Private household	-0.8027*	-0.5612
Missing data on occupation	0.2288	-1.5735*
Hourly rate of pay	-0.0000	-0.0003**
Training-related placement	-0.0287	0.0540
df	2250	2621
R^2	.0507	.0538

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-5

CORRELATES OF HOURLY RATE OF PAY

(Full Equation JS_5)

Variable	Regression Coefficients 1979	1980
Intercept	303.1421**	406.9017**
Small firm	-101.1468**	-81.1103**
Medium firm	-91.0006**	-62.8230**
Large firm	-82.8576**	-46.4551**
Missing data on firm	-81.8433**	-77.7863**
Union	83.5761**	67.5375**
Missing data on union	-20.7326	-40.0517**
Evening shift	13.6256	-0.3753
Night shift	40.7554**	22.5448
Split shift	10.2210	45.0823*
Variable shift	8.0182	19.2673*
Missing data on shift	-79.2014	15.5870
Hours per week	3.5725	-8.9977
Missing data on hours per week	6.0793	
Health insurance	0.1568	22.2325*
Life insurance	29.2912**	39.4340**
Paid vacation	5.1618	-9.6914
Missing data on health insurance	-25.5124	-29.0471
Missing data on life insurance	2.5543	-25.9095
Missing data on paid vacation	41.5735	-14.2601
Concentrator	3.7130	-24.8917
Limited Concentrator	0.2196	-32.3758*
Concentrator/Explorer	9.9615	-37.3103*
Explorer	3.7836	-23.3156
Incidental/Personal	18.6707	-38.0772*
Missing data on patterns	7.1293	-42.5360**
Academic no vocational	-14.8042	-18.9954
Hispanic male	-21.5308	-14.9340
Black male	-22.3553	-38.5202**
Hispanic female	-45.5943**	-73.9312**
Black female	-42.7154**	-80.4592**
White female	-48.9459**	-85.1793**
SES	0.3290	0.5640**
Highest grade completed 13	-8.5347	-7.4738
Highest grade completed 14	-14.4510	5.7940
Highest grade completed 15	-35.9625*	-4.4894
Highest grade completed 16	-8.7472	26.9639
Highest grade completed 17	65.3900	18.3722
Age	5.6034	6.9147
Northeast	6.8072	-10.8354

TABLE E-5
(Continued)

Variable	Regression Coefficients 1979	1980
South	-21.2897**	-34.4464**
West	29.5173**	34.1345**
Missing data on region	24.7902	-7.4003
Work experience	1.1854**	1.1369**
Personal job satisfaction	-1.8883	4.2916*
Satisfaction with work conditions	-4.7355**	-7.9550**
Satisfaction with job rewards	16.9765**	15.6293**
Satisfaction with interpersonal relationships	-4.7638	-14.6879**
Professional	5.2035	-1.0107
Managerial	-54.4705*	-26.9672
Sales	-44.9426**	-25.7401
Clerical	-36.7920**	-27.4682
Crafts	32.1807*	37.0575*
Operative	-23.2122	-4.7121
Farm	-133.2339**	-97.8882**
Service	-43.4837**	-31.6896*
Private household	-138.2829**	-205.6064**
Missing data on occupation	25.4772	26.4367
df	1963	2316
R^2	.3410	.3369

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-6

CORRELATES OF PERSONAL SATISFACTION FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	5.8012**	6.9957**
Small firm	0.3089	1.0335**
Medium firm	0.1302	0.2113
Large firm	-0.2253	0.4141
Missing data on firm	0.2692	0.7385**
Union	-0.3123	0.1199
Missing data on union	0.1024	-0.0938
Evening shift	-0.0303	-0.4198*
Night shift	-0.2717	0.1080
Split shift	0.3338	-0.8495*
Variable shift	-0.1436	-0.1263
Missing data on shift	-0.8848	-0.3406
Hours per week	0.2095	0.2674
Missing data on hours per week	-0.0596	
Health insurance	0.0670	-0.0213
Life insurance	0.2388	0.2450
Paid vacation	0.3887*	0.0189
Missing data on health insurance	-1.0540	-0.0327
Missing data on life insurance	1.7233*	0.7535
Missing data on paid vacation	-0.0708	0.2307
Hispanic male	0.2923	-0.0910
Black male	-0.3690	-0.5623*
Hispanic female	-0.1306	0.1841
Black female	-0.4938	-0.2079
White female	-0.1240	0.0572
SES	-0.0065	-0.0013
Self-esteem	0.0379*	0.0384**
Occupation aspiration match	0.5692**	0.6571**
Missing data on match	0.2344	0.0246
Highest grade completed 13	-0.0722	0.1995
Highest grade completed 14	-0.0427	0.1632
Highest grade completed 15	-0.2302	-0.3225
Highest grade completed 16	-0.0349	-0.3801
Age	0.0260	-0.0335
Hourly rate of pay	0.0010	0.0008*
Professional	2.0514**	1.4505**
Managerial	1.0328**	1.2794**
Sales	0.9725**	0.6274
Clerical	0.7370**	0.7378**

TABLE E-6
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	0.7380*	0.5717*
Operative	-0.2038	-0.2162
Farm	1.332	-0.1474
Service	0.0179	0.2591
Private household	-0.2620	1.4844
Training-related Concentrator	0.3479	-0.0588
Training-related Limited Concentrator	0.3054	0.1362
Training-related Concentrator/Explorer	0.1297	-0.0036
Training-related Incidental/Personal	-0.2450	0.2337
df	960	1109
R^2	.1861	.1920

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-7

CORRELATES OF SATISFACTION WITH JOB CONDITIONS FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	9.0723**	8.3109**
Small firm	-0.0255	0.5200*
Medium firm	0.0667	0.3469
Large firm	0.0753	0.4734
Missing data on firm	-0.1113	0.2268
Union	-0.3005**	-0.3666**
Missing data on union	-0.0274	0.2735
Evening shift	-0.1854	-0.3944*
Night shift	-0.0946	-0.4439
Split shift	0.1011	0.1856
Variable shift	-0.2010	-0.2037
Missing data on shift	-1.7739	0.4196
Hours per week	-0.4173*	-0.6504**
Missing data on hours per week	-0.4839	
Health insurance	0.0429	-0.4657**
Life insurance	0.0144	0.0266
Paid vacation	-0.1770	0.1979
Missing data on health insurance	-0.7489	-0.2508
Missing data on life insurance	0.8396	0.3291
Missing data on paid vacation	0.1735	-1.5839
Hispanic male	-0.0914	-0.0003
Black male	0.3452	-0.1434
Hispanic female	0.5080	0.7107**
Black female	0.5672*	0.3740
White female	0.3302	0.1680
SES	-0.0001	0.0061
Self-esteem	0.0320*	0.0434**
Occupation aspiration match	0.0504	0.2637
Missing data on match	0.3900	0.1152
Highest grade completed 13	0.1969	0.1632
Highest grade completed 14	-0.1723	0.2506
Highest grade completed 15	0.4887	-0.2259
Highest grade completed 16	0.5550	0.6578
Age	-0.0404	0.0096
Hourly rate of pay	0.0002	-0.0008
Professional	0.7346	0.6376
Managerial	1.7859**	0.9258**
Sales	1.3613**	0.8761**
Clerical	1.2639**	1.1833**

TABLE E-7
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	-0.7635**	-0.8943**
Operative	-0.8422**	-0.7306**
Farm	0.1036	0.2881
Service	0.1647	-0.0843
Private household	1.2675	0.6701
Training-related Concentrator	0.0662	-0.1516
Training-related Limited Concentrator	0.0286	-0.1117
Training-related Concentrator/Explorer	-0.1496	-0.0117
Training-related Incidental/Personal	-0.2510	-0.0024
df	960	1109
R^2	.2975	.3103

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-8

CORRELATES OF SATISFACTION WITH JOB REWARDS FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	6.8610**	7.2834**
Small firm	-0.3420	-0.0738
Medium firm	-0.3745	-0.3950
Large firm	-0.7149*	0.0579
Missing data on firm	-0.6664	-0.2291
Union	0.1388	0.0242
Missing data on union	0.1216	0.3548
Evening shift	0.2753	-0.1050
Night shift	0.0236	-0.1605
Split shift	0.1484	-0.0361
Variable shift	-0.2401	0.0014
Missing data on shift	-0.3854	0.6663
Hours per week	0.4707**	0.0656
Missing data on hours per week	0.3691	
Health insurance	0.2763	0.3516*
Life insurance	0.3368	0.4964**
Paid vacation	0.4084*	0.3027
Missing data on health insurance	-1.5771	-0.6661
Missing data on life insurance	0.7146	0.5850
Missing data on paid vacation	0.9590	0.7873
Hispanic male	-0.1736	-0.5702*
Black male	-0.3806	-0.4559
Hispanic female	-0.2502	-0.2785
Black female	-0.4258	-0.8035**
White female	-0.1475	-0.3217
SES	0.0034	-0.0019
Self-esteem	0.0378**	0.0278
Occupation aspiration match	0.3818*	0.1222
Missing data on match	0.0498	-0.2313
Highest grade completed 13	-0.0918	0.1279
Highest grade completed 14	-0.4357	-0.2673
Highest grade completed 15	-0.2459	-0.1099
Highest grade completed 16	-0.9338	-0.2173
Age	-0.0546	-0.0305
Hourly rate of pay	0.0028**	0.0018**
Professional	0.4085	0.0953
Managerial	0.9573*	0.8154*
Sales	0.6307	0.2756
Clerical	0.4715	0.5122*

TABLE E-8
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	0.5217	-0.1265
Operative	-0.2055	0.0224
Farm	1.3272*	0.6821
Service	-0.1024	0.0511
Private household	-0.7292	0.2733
Training-related Concentrator	-0.0131	-0.2369
Training-related Limited Concentrator	0.2939	-0.0468
Training-related Concentrator/Explorer	-0.2462	0.0116
Training-related Incidental/Personal	-0.3450	-0.0707
df	960	1109
R^2	.2364	.1467

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-9

CORRELATES OF JOB SATISFACTION WITH INTERPERSONAL RELATIONSHIPS FOR PERSONS ELIGIBLE FOR TRAINING-RELATED PLACEMENT

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	6.6883**	6.9764**
Small firm	0.2560	0.3364*
Medium firm	0.0404	0.1074
Large firm	-0.0088	0.1167
Missing data on firm	0.2873	0.3070*
Union	-0.2491*	-0.0887
Missing data on union	0.0668	0.1756
Evening shift	-0.3229**	-0.0745
Night shift	0.0481	0.0164
Split shift	0.1445	0.0360
Variable shift	0.1056	-0.0230
Missing data on shift	-2.1280**	-1.4668
Hours per week	-0.0230	-0.1214
Missing data on hours per week	-0.3101	
Health insurance	-0.0081	-0.1000
Life insurance	0.1025	0.1130
Paid vacation	-0.0178	0.0042
Missing data on health insurance	-0.3710	-0.4003
Missing data on life insurance	0.6457	0.2703
Missing data on paid vacation	0.1885	-0.0705
Hispanic male	0.0100	-0.1084
Black male	-0.1826	-0.4998**
Hispanic female	0.1585	0.0150
Black female	-0.0588	-0.2678*
White female	0.1078	0.0096
SES	0.0007	0.0033
Self-esteem	0.0228**	0.0204*
Occupation aspiration match	0.0712	0.1042
Missing data on match	0.0790	0.0153
Highest grade completed 13	-0.0990	-0.0104
Highest grade completed 14	-0.1195	-0.0811
Highest grade completed 15	0.0644	-0.0128
Highest grade completed 16	-0.4545	-0.0274
Age	-0.0221	-0.0179
Hourly rate of pay	0.0001	-0.0003
Professional	-0.0521	-0.0332
Managerial	-0.0035	0.0321
Sales	0.1538	0.1146
Clerical	0.0517	0.0703

TABLE E-9
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	0.1912	-0.1221
Operative	-0.0538	0.0712
Farm	0.1579	0.1403
Service	-0.2348	0.1305
Private household	-1.8608*	0.0678
Training-related Concentrator	-0.0686	-0.0381
Training-related Limited Concentrator	-0.1609	0.0922
Training-related Concentrator/Explorer	0.1300	0.0668
Training-related Incidental/Personal	0.1088	0.0827
df	960	1109
R^2	.0847	.0706

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-10

CORRELATES OF PERSONAL JOB SATISFACTION FOR ALL PERSONS WITH A JOB IN 1979 OR 1980

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	5.5633**	6.1616**
Small firm	1.0563**	0.7133**
Medium firm	0.7553**	0.2645
Large firm	0.5150*	0.1138
Missing data on firm	0.9030**	0.6472**
Union	-0.3094*	-0.0567
Missing data on union	0.1277	0.0321
Evening shift	-0.3899**	-0.4733**
Night shift	-0.3250	-0.0669
Split shift	-0.2921	-0.6297**
Variable shift	-0.1806	-0.0476
Missing data on shift	-0.5537	-0.1261
Hours per week	0.4238**	0.2503*
Missing data on hours per week	0.5223*	
Health insurance	0.1570**	0.0952
Life insurance	0.1885	0.1787
Paid vacation	0.3046	0.1958
Missing data on health insurance	-0.9665	0.3656
Missing data on life insurance	0.7436	0.3721
Missing data on paid vacation	0.6194	0.1128
Hispanic male	0.2748	0.0872
Black male	-0.0698	-0.3744**
Hispanic female	0.2678	0.2794
Black female	0.0814	-0.0206
White female	0.1501	0.2444*
SES	0.0008	-0.0046
Self-esteem	0.0153	0.0451**
Occupation aspiration match	0.7229**	0.5343**
Missing data on match	0.0942	-0.0542
Highest grade completed 13	0.0045	0.1132
Highest grade completed 14	-0.0371	0.0492
Highest grade completed 15	-0.3449	-0.1218
Highest grade completed 16	0.5838	-0.3768
Highest grade completed 17	0.2761	-0.4636
Age	0.0231	-0.0298
Hourly rate of pay	0.0006*	0.0009**
Professional	2.0059**	1.6305**
Managerial	1.0067**	1.4046**
Sales	0.9381**	0.9581**
Clerical	0.7574**	0.8062**

TABLE E-10
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	1.0209**	1.0907**
Operative	0.1473	0.1416
Farm	1.5415**	0.5239
Service	0.3546	0.6096**
Private household	0.1341	1.1080
Missing data on occupation	2.1287	0.3542
Training-related Concentrator	0.4183*	0.1764
Training-related Limited Concentrator	0.4393*	0.3432*
Training-related Concentrator/Explorer	0.2151	0.2178
Nontraining-related Concentrator	-0.0508	0.4175
Nontraining-related Limited Concentrator	0.1365	0.0102
Nontraining-related Concentrator/Explorer	0.0219	-0.0750
Explorer	0.1032	0.3834
Missing data on patterns	-0.0458	0.1244
Training-related Incidental/Personal	-0.0940	0.4784**
Nontraining-related Incidental/Personal	0.0055	0.2627
df	2248	2619
R^2	.1828	.1583

*Chance probability < .05
**Chance probability < .01

TABLE E-11

CORRELATES OF SATISFACTION WITH JOB CONDITIONS
FOR ALL PERSONS WITH A JOB IN 1979 OR 1980

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	8.9745**	6.5828**
Small firm	0.6258**	0.6794**
Medium firm	0.8364**	0.5123**
Large firm	0.7286**	0.5399**
Missing data on firm	0.4647*	0.4000*
Union	-0.7472**	-0.3577**
Missing data on union	-0.0631	0.1229
Evening shift	-0.3335*	-0.3064*
Night shift	-0.2207	-0.2150
Split shift	-0.1013	0.1695
Variable shift	-0.1459	-0.1111
Missing data on shift	-0.9031	0.1386
Hours per week	-0.3335**	-0.4190**
Missing data on hours per week	-0.4843*	
Health insurance	0.0342	-0.2433*
Life insurance	-0.0654	-0.0463
Paid vacation	-0.0319	0.0890
Missing data on health insurance	-0.2326	-0.5197
Missing data on life insurance	0.2766	-0.1227
Missing data on paid vacation	-0.1003	0.4572
Hispanic male	0.2775	0.0537
Black male	0.0459	-0.0624
Hispanic female	0.6377**	0.5535**
Black female	0.5040**	0.3866**
White female	0.4579**	0.2952**
SES	0.0036	0.0031
Self-esteem	0.0370**	0.0561**
Occupation aspiration match	0.1410	0.2061*
Missing data on match	0.1333	0.0846
Highest grade completed 13	0.0979	0.1423
Highest grade completed 14	0.0142	0.1632
Highest grade completed 15	0.4125*	-0.4899*
Highest grade completed 16	0.4366	0.4064*
Highest grade completed 17	0.7789	1.2228
Age	-0.0849*	0.0336
Hourly rate of pay	-0.0004	-0.0009**
Professional	0.5650*	0.5329*
Managerial	1.6059**	1.2286**
Sales	1.4703**	1.3723**
Clerical	1.3342**	1.2784**

TABLE E-11
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	-0.5161**	-0.6270**
Operative	-0.5164**	-0.3432*
Farm	0.4841	0.1892
Service	0.3567*	0.4619**
Private household	2.0543**	1.6620*
Missing data on occupation	0.2293	-0.2581
Training-related Concentrator	0.1986	0.1620
Training-related Limited Concentrator	0.1583	0.1774
Training-related Concentrator/Explorer	-0.0566	0.2561
Nontraining-related Concentrator	0.6615*	0.9355**
Nontraining-related Limited Concentrator	0.4299*	0.0765
Nontraining-related Concentrator/Explorer	-0.2183	0.0443
Explorer	0.3778	0.1114
Missing data on patterns	0.1207	0.2087*
Training-related Incidental/Personal	-0.1159	0.3254
Nontraining-related Incidental/Personal	-0.0819	0.1193
df	2248	2619
R^2	.2950	.2686

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-12

CORRELATES OF SATISFACTION WITH JOB REWARDS FOR ALL PERSONS WITH A JOB IN 1979 OR 1980

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	7.5703**	7.3882**
Small firm	-0.0582	-0.2461
Medium firm	-0.1544	-0.3605*
Large firm	-0.4849*	-0.0617
Missing data on firm	-0.5258*	-0.2154
Union	0.1891	0.0995
Missing data on union	0.1231	0.3734*
Evening shift	-0.1860	-0.0997
Night shift	-0.1726	-0.1695
Split shift	0.1226	0.0392
Variable shift	-0.2175	0.0810
Missing data on shift	-0.7196	0.8562
Hours per week	0.2559*	0.2093
Missing data on hours per week	0.2133	
Health insurance	0.3448**	0.4226**
Life insurance	0.3453**	0.4061**
Paid vacation	0.5487**	0.4073**
Missing data on health insurance	-0.4266	-0.2007
Missing data on life insurance	0.2341	0.4768
Missing data on paid vacation	0.7426	0.1560
Hispanic male	-0.0957	-0.1154
Black male	-0.3478*	-0.1983
Hispanic female	-0.0106	-0.0734
Black female	-0.2813	-0.6039**
White female	-0.2155	-0.2223*
SES	0.0026	-0.0014
Self-esteem	0.0289**	0.0348**
Occupation aspiration match	0.3420**	0.0850
Missing data on match	-0.1550	-0.1751
Highest grade completed 13	0.0630	0.0908
Highest grade completed 14	-0.0979	-0.0652
Highest grade completed 15	-0.0874	-0.1946
Highest grade completed 16	-0.1614	-0.0840**
Highest grade completed 17	0.0707	-1.2859**
Age	-0.1004*	-0.0820*
Hourly rate of pay	0.0029**	0.0018**
Professional	0.5420*	0.4768
Managerial	0.8286**	1.0121
Sales	0.6691**	0.2913
Clerical	0.4378*	0.5833**

TABLE E-12
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	0.2945	0.1647
Operative	0.1164	0.1680
Farm	1.2457**	0.8105*
Service	0.2047	0.2639
Private household	-0.1035	1.6559*
Missing data on occupation	2.1973	0.7676
Training-related Concentrator	0.3260	0.0309
Training-related Limited Concentrator	0.5584**	0.2174
Training-related Concentrator/Explorer	0.0076	0.2619
Nontraining-related Concentrator	0.3560	0.6066*
Nontraining-related Limited Concentrator	0.1984	0.1003
Nontraining-related Concentrator/Explorer	0.0406	0.3079
Explorer	-0.2449	0.1074
Missing data on patterns	0.0184	0.0322
Training-related Incidental/Personal	-0.1496	0.1904
Nontraining-related Incidental/Personal	0.1049	0.1361
df	2248	2619
R^2	.1959	.1516

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-13

CORRELATES OF JOB SATISFACTION WITH INTERPERSONAL RELATIONSHIPS FOR ALL PERSONS WITH A JOB IN 1979 OR 1980

(Full Equation)

Variable	Regression Coefficients 1979	1980
Intercept	6.9879**	6.7582**
Small firm	0.3361**	0.2893**
Medium firm	0.2267*	0.1574
Large firm	0.0901	0.1400
Missing data on firm	0.3182**	0.2882**
Union	-0.1768*	0.0002
Missing data on union	-0.0256	0.0732
Evening shift	-0.0379	-0.0822
Night shift	-0.1063	-0.0295
Split shift	-0.0400	-0.1461
Variable shift	0.0312	0.0038
Missing data on shift	-1.1813**	-0.7818
Hours per week	-0.0552	-0.0645
Missing data on hours per week	0.1099	
Health insurance	0.0427	-0.0114
Life insurance	-0.0183	-0.0064
Paid vacation	0.0139	0.0401
Missing data on health insurance	-0.2481	0.0599
Missing data on life insurance	0.3684	0.1388
Missing data on paid vacation	0.2205	-0.1617
Hispanic male	0.0352	-0.0130
Black male	-0.1010	-0.3188**
Hispanic female	0.0747	0.0899
Black female	-0.0622	-0.2709**
White female	0.0451	-0.0389
SES	0.0005	0.0001
Self-esteem	0.0163**	0.0245**
Occupation aspiration match	0.0280	0.0996
Missing data on match	-0.0121	-0.0118
Highest grade completed 13	-0.0609	0.0235
Highest grade completed 14	0.0116	0.0053
Highest grade completed 15	-0.0655	-0.1528
Highest grade completed 16	-0.1299	-0.0128
Highest grade completed 17	0.4679	0.1885
Age	-0.0363	-0.0177
Hourly rate of pay	0.0000	-0.0004**
Professional	0.1966	0.0851
Managerial	0.0768	0.0770
Sales	0.1361	0.1560
Clerical	0.1239	0.0164

TABLE E-13
(Continued)

Variable	Regression Coefficients 1979	1980
Crafts	0.1643	-0.0118
Operative	0.1016	-0.0607
Farm	0.2285	-0.2035
Service	-0.0589	-0.0091
Private household	-0.7737*	-0.5523
Missing data on occupation	0.2908	-1.5520*
Training-related Concentrator	0.1376	0.0049
Training-related Limited Concentrator	0.0256	0.1400
Training-related Concentrator/Explorer	0.0727	0.1153
Nontraining-related Concentrator	0.1961	0.3914**
Nontraining-related Limited Concentrator	0.1648	0.0158
Nontraining-related Concentrator/Explorer	0.1283	-0.1353
Explorer	-0.0346	0.2304
Missing data on patterns	-0.0066	-0.0050
Training-related Incidental/Personal	0.1484	0.1281
Nontraining-related Incidental/Personal	0.0574	0.1030
df	2248	2619
R^2	.0491	.0576

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

TABLE E-14

CORRELATES OF JOB MOBILITY

Variable	Regression Coefficients	
	Full Sample	Restricted Sample
White female	-0.0004	0.0004
Content of aspired occupation	-0.0015*	-0.0011*
Change in satisfaction--human interaction	-0.0003	-0.0005
Managerial	-0.0014	-0.0037
Concentrator/Explorer--related	-0.0002	0.0013
Sales	-0.0003	-0.0020
Experience	-0.0006**	-0.0008**
Concentrator/Explorer--not related	-0.0060*	-0.0053
Change in satisfaction--job conditions	-0.00008	-0.0001
Explorer	-0.0027	-0.0014
Farm	-0.0054	-0.0058
Limited Concentrator--not related	-0.0045	-0.0020
Operative, transport	-0.0008	-0.0018
Incidental/Personal--not related	-0.0017	0.0005
Hispanic male	0.0020	0.0028
Concentrator--related	-0.0028	-0.0007
Majority of occupations in two or more areas	0.0020	0.0015
Concentrator--not related	-0.0058	-0.0017
Academic no vocational	0.0013	-0.0005
Satisfaction with job rewards	-0.0012**	-0.0009**
Hispanic female	0.0001	0.0030
Incidental/Personal--related	-0.0026	-0.0008
Black male	-0.0035*	0.0002
Operative	-0.0013	-0.0023
Limited Concentrator--related	-0.0015	0.0008
Professional	0.0031	-0.0036
Crafts	0.0011	0.0002
Socioeconomic status	0.0003**	0.0002**
Change in satisfaction--personal	0.0001	0.0001
Black female	-0.0041**	-0.0033
Service	0.0062**	0.0055**
Change in occupational aspiration	0.0003	0.0003
Satisfaction with working conditions	0.0002	-0.0002
Change in satisfaction--job rewards	0.0003	0.0005
Interpersonal job satisfaction	0.0015**	0.0015**
Personal development job satisfaction	-0.0005*	-0.0004
Missing data pattern	-0.0005	0.0017
Clerical	0.0020	0.0013
Experience squared	0.000005*	0.000007**
Constant	0.0372	0.0396
df	1210	717
R^2	0.151	0.148

*Chance probability $\leq$ .05
**Chance probability $\leq$ .01

NOTE: Full sample represents respondents graduating by 1979 with job satisfaction data. Restricted sample represents respondents graduating by 1979 with job satisfaction data and less than one year of postsecondary education.

TABLE E-15

CHANGE IN EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS

Variable	Regression Coefficients 1979-1982 Education	1979-1982 Occupation
School attitude	-0.01495	-0.01803
School size	-0.00004	0.00023**
SES	0.00278	0.00182
Percent dropouts	-0.01036	-0.00889
Black male	1.23957**	0.43895
Black female	0.90962**	0.11540
Hispanic male	0.32752	-0.19456
Hispanic female	0.52280	0.29096
White female	-0.23504	-0.05192
Academic curriculum	-0.35077*	0.02539
ASVAB	0.01246*	-0.00579
Friends aspirations	-0.15130**	-0.02373
Percent peers of same race	0.00149	0.00356
Intercept	2.08660	0.57018
df	672	560
R^2	0.0849	0.0395

*Chance probability $\leq$ 0.05
**Chance probability $\leq$ 0.01

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