

The Relationship Between Selected Student Characteristics,
Participation in Vocational Education and
the Labor Market Achievement of High School Graduates

by

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(ABSTRACT)

The purpose of this study was to investigate the relationship between the selected students' characteristics, participation in vocational education, and the labor market achievement (job satisfactoriness, income, job satisfaction) of 1983/84 graduates of a comprehensive high school in S.W. Virginia. Data were collected from students, their academic records (transcripts and test records), the students and their employer follow-up.

The selected student characteristic variables used were: ACADEMIC ACHIEVEMENT VARIABLES: Grade Point Average (GPA), Virginia Competency Test scores in Reading and Mathematics (VCT-Reading, VCT-Math); ACADEMIC APTITUDE VARIABLES: Science Research Associate scores in Language and Applied Science (SRA-Lang., SRA-App. Sci.); SOCIOECONOMIC VARIABLES: Educational level of head of household (HEAD-ED); OTHER VARIABLES: the number of vocational education credits taken (VTE-Credit), Sex, Job Satisfactoriness (Boss-Sat) of the

graduates, job performance, income earned per hour, and Job Satisfaction. The data collected were analyzed by using the stepwise regression to predict the labor market achievement variables. A partial correlation was used to investigate the relationship between overall labor market achievement variables and each of the independent variables while the effect of others were controlled. Cohen's criteria were used to investigate the strength of relationship (practical importance) between variables. The coefficient of determination and the partial correlation of the findings outlined below were too small to be of practical importance in the investigation of high school graduates' labor market achievement. However, the results of the analyses of graduates' job satisfactoriness showed that male graduates with high academic achievement, low socioeconomic status, low aptitude tended to have higher job satisfactoriness. Females with high degree of participation in vocational education tended to experience higher job satisfactoriness. In terms of income earned by male graduates, academic achievement (GPA) was the best predictor. Analysis showed that females with low socioeconomic status (SES) tended to earn higher income. Those females with high degree of participation in vocational education tended to earn higher income. For job satisfaction of males, those with low SES tended to be more satisfied with their job, while females with high aptitude and high degree

of participation in vocational education tended to be more satisfied with their jobs.

For overall job satisfaction, without sex differentiation, individuals with high academic achievement tended to have low job satisfaction. High aptitude in English language tended to make graduates more satisfied with their jobs. In terms of income, graduates with high achievement tended to earn low income. On job satisfactoriness, graduates with high achievement tended to have higher job satisfactoriness.

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CHAPTER I

INTRODUCTION TO THE STUDY

The concern for man and his destiny must always be the chief interest of all technical effort. Never forget it among your diagrams and equations: -- (Albert Einstein)

Calhoun and Finch (1976) stated that to the individual, an occupation is an important source of social identity. A person's occupation has direct significance on self-fulfillment and social prestige. It consumes a major portion of one's own daily life and affects to a large extent other facets of one's life such as interpersonal relationships with others, income security, lifestyle, and even the opportunities available to one's offspring.

Super (1970) said that choosing a vocation is a modern concept. Two hundred years ago, social class and tradition were dominant factors in determining an individual's occupation. A young man did not choose an occupation; he was expected to enter either his father's occupation or one of his father's choosing. Therefore, the father's occupation, education, "say so" and many other background characteristics had an overriding effect on the vocational or educational track that the young man chose and also influenced his labor market/employment achievement.

Education can be viewed as the transmission of values and accumulated knowledge of a society (Adrian, 1966). In this sense, it is equivalent to what social scientists term socialization or acculturation. Vocational education is concerned with man's attempt to learn to work and to pass knowledge about work to succeeding generations. A child, whether conceived among the African tribes, the Renaissance Florentines, or the middle classes of Manhattan, is born without culture. Education is designed to guide him in learning a culture, molding his behavior to adulthood, and guiding him toward his eventual role in society.

Men have been involved in education and in work of one type or another since prehistoric time. Since the Stone Age, work has been the only means to satisfy both man's needs and desires. However, just as the nature of man's work has changed with time, so have his attitudes changed toward work and education.

Roberts (1968) stated that as man became involved in different ways of working, he learned that some men were better able than others to perform certain tasks. This discovery marked the beginning of specialization. On the basis of the idea of specialized abilities and interests, young people were encouraged to learn specific vocational skills. An early method of instruction that was developed to teach such skills was the apprenticeship system which was the first form of organized vocational training.

The prevailing method of learning a manual art or trade in the early Egyptian and Babylonian civilizations and through the Sloyd system was by the traditional imitative method. After this time, the method began to be that of mastering the elements of the art, one or a few at a time, in progressive sequence from easy to difficult (Bennett, 1937, p. 13).

Education in the New World was the embodiment of educational trends in Western Europe. Apprenticeship continued, religious schools proliferated, Latin grammar schools existed for the wealthy, and practical schooling took root. The New England Colonists, motivated by the Protestant work ethic and idea of equality stemming from the Reformation, fostered the idea of public education. Public education to this day reflects the dichotomization of education in the humanist and realist traditions.

The academic curriculum in our public school system is the outgrowth of the realist philosophy of the 17th century. Thus, our present public educational system has a centuries old tradition. The question arises as to whether a system of education adapted to the needs of the 16th and 17th centuries is appropriate to educational needs of the 21st century (Schowalter, 1974).

The Relationship Between Public Education and Work

There seems to be some relationship between public education, vocational, academic or general education, and work. The changes in the way we live and how we make our living have caused vocational education to become central to the total process of public education (Evans & Herr, 1979). The purposes of vocational education have, therefore, become enmeshed with the purposes of public education. Today, critics of vocational education are not justified in their classification of vocational education as a separate and distinct entity set separate from public education. The total educational process is inexorably tied to the work required by society because the nature of society and the characteristics of work have changed.

In recent years, these changes have been rapid and have magnified the interdependence of work and education. Evans and Herr (1979) also said that "there is no place in the world of work either for the uneducated person, or for the educated person who has not learned to work" (p. 39). If vocational education is defined as education for what a person does to earn a living, it follows that vocational education consists of the educational content and process through which an individual learns to become a competent worker. This, therefore, reaffirms that vocational education is a part of the

total educational process. The skills and knowledge required of a person to perform the tasks of an occupation are the main concerns of vocational education. Mindful of the necessity for workers to acquire skills, knowledge, and understanding in a variety of related educational contexts, it is the specific occupational task with which vocational education has primary concern (Evans & Herr, 1979).

Context of the Problem

The two major curricula in high school education today are the vocational and the nonvocational curricula (Laska & Chiou, 1973). The nonvocational curriculum is designed to fulfill the needs of students planning to continue their education as well as acculturate all students, while the vocational education curriculum has been geared to the development of entry-level skills in the vocational fields to promote employability upon graduation. However, many nonvocational students seek employment after graduation while many vocational students continue their education upon graduation and vice versa (Schowalter, 1974). This has led critics of vocational education to repeatedly ask the question: What would have happened to students had they not participated in a vocational education program or taken at least a course or two from a vocational education curriculum? Yet others, such as policymakers and legislators, want to

know what the effects or benefits of vocational education are, and whether or not the benefits justify the nation's expenditures on vocational education. Unfortunately, there is not yet clear-cut evidence to answer these questions.

Laypersons, educators and policymakers alike have traditionally assumed that students' vocational education experience and labor market outcomes are closely related. This belief has been used to justify billion-dollar expenditures every year in high school vocational programs across the United States. Vocational education is traditionally believed to be an indispensable social program (Li, 1981). In 1914, the Commission of National Aid to Vocational Education, whose recommendations were subsequently incorporated into the Smith-Hughes Act, stated that:

Expenditure of money for vocational education is a wise business investment which will yield larger return, not only in educational and social betterment, but in money itself, than a similar amount spent for almost any other purpose. (U.S. House of Representatives, 1914, p. 18)

This viewpoint is echoed by the majority of vocational educators today. Although the practitioners in vocational education will not state that vocational education is a panacea to cure national problems, most seem to believe that spending billions of dollars has to produce some effect.

Several research studies have investigated the effects of vocational education, particularly at the secondary level, in relation to former vocational students' labor market ex-

periences. The findings of many of the studies as to whether vocational programs have produced the expected effects are mixed but appear more positive than negative. Some of the studies have shown that vocational education participants enjoy certain labor market advantages over nonvocational education participants. Burgess (1979), Conroy and Diamond (1976), Enderlein (1979), Felstehausen (1973), and Katz, Morgan, and Drewes (1974) concluded that vocational education is, indeed, a wise investment because there is a definite earnings advantage among vocational graduates as compared to nonvocational graduates. This results in economic return in the form of taxes paid by graduates to the government. Vocational education graduates were also cited by the studies as being more satisfied with their jobs and to have performed well and show more dexterity in the area of their training over other graduates. Other studies, such as Grasso and Shea (1979), Kaufman and Lewis (1972), Parker, Whelan, Gonzales, Trujillo, and English (1979), and Wilms (1975) showed vocational education participants as enjoying no significant labor market advantages over nonvocational participants.

Seitz and Campbell (1981) stated that depending upon the manner in which vocational education is defined the outcomes will vary. Also one of the most problematic characteristics of existing research into the effects of vocational education is the failure to account for learner background characteristics and the variability in students' secondary experiences

(Laska & Chiou, 1973). Yet, because high school for many is the last experiences with formal public education before beginning a lifetime of work, it is not only appropriate but useful to consider learner background and in-school characteristics and their relationship to employment or labor market achievement.

The Statement of the Problem

The problem of this study was to investigate the relationship between selected student background and in-school characteristics, participation in vocational education, and the labor market achievement/advantages attained by high school graduates one year after graduation. This problem was investigated in order to ascertain if vocational education contributes in any way to the labor market achievement of graduates when the effects of background and in-school characteristics are held constant.

Research Question

What is the relationship between job satisfactoriness, income earned per hour and job satisfaction of former students one year after their graduation from high school and each of the following student characteristics:

1. Academic achievement
2. Academic aptitude

3. Socioeconomic status (SES)
4. Degree of participation in vocational education
5. Sex

The Purpose of the Study

Vocational education has been charged with multiple goals in recent legislation. Nevertheless, the goal most commonly associated with vocational education is to prepare individuals to enter the workforce. In order to determine the success of vocational programs in achieving this main purpose, it has been necessary to follow-up former students. The primary purpose of this study was to investigate whether there is a relationship between labor market achievement of high school graduates and participation in vocational education when the natural differences between students are controlled. There were risks of accepting a spurious relationship between participation in vocational education and labor market achievement of former students as fact unless such natural differences were controlled.

Significance of the Study

This study provides information that can be used to evaluate the relationship between high school vocational education and the labor market achievement attained by the graduates. Evaluation of the effects of vocational education

as shown by graduates' labor market achievement/advantages would provide relevant feedback to educational planners, vocational teachers, and interested educators regarding whether vocational education facilitates the work adjustment of students as indicated by job satisfactoriness and job satisfaction of graduates.

Limitations of the Study

The following limitations should be considered when reviewing the results of this study.

1. This study only included 393 individuals from a comprehensive high school in S. W. Virginia who graduated in 1984 and obtained employment following graduation.
2. The study has no control over the economic fluctuations of the labor market but is aware that job opportunities for high school graduates are a function of the economic condition of the country, and more specifically the locality included in the study.
3. The results of this study were based on one school only; therefore, it is limited in its generalizability to other populations.

Assumptions

This study was based on the following assumptions:

1. That job satisfactoriness and the job satisfaction of graduates to the employer are indicators of successful adjustment from school to work on the part of the graduate.
2. That graduates had entered jobs in the areas that they wished to work.
3. That there was adequate availability of jobs for graduates who wanted to work after graduation.

Definition of Terms

In order to clarify the meaning of selected terms the following list defines a number of key terms associated with this study. The terms were operationally defined.

Academic Achievement:

Academic achievement is represented by the students': (a) cumulative grade point average (GPA) and (b) the score on the Virginia Competency Test (VCT) which measures the academic achievement of students in reading and mathematics. Students must pass the VCT to receive a high school diploma.

Academic Aptitude:

Academic aptitude is represented by the students' scores on the Science Research Associate (SRA) Aptitude Test taken in the 11th grade. The SRA measures students'

aptitude in the following areas: (a) English composition, (b) reading, (c) mathematics, (d) English language, (e) social science, (f) science, and (g) applied science. Only the scores on language, mathematics and applied science were used in this study.

Graduate:

A graduate is defined as a person who has completed a course of study at the high school under study and has received a certificate or diploma attesting to that effect.

Job Satisfactoriness:

Job satisfactoriness is the correspondence between the individuals' abilities and the ability requirements of the job. Job satisfactoriness is work adjustment viewed from the perspective of the employer. It represents an employer's extrinsic evaluation of the employee's performance (Betz, Weis, Davis, England, & Lofquist, 1966).

Job Satisfaction:

This is an indicator of the extent to which the work environment fulfills an individual's needs and requirements (Howes, 1981; Schowalter, 1974).

Vocational Education:

In the United States, legislation defines vocational education as the education for any occupation which

normally requires less than a baccalaureate degree for the beginning worker (Evans & Herr, 1979). For the purpose of this study, vocational education is defined as education for any specialized trade such as automotive mechanics, carpentry, health occupations, etc., that enables an individual to develop job entry level skills.

Nonvocational Education:

Evans and Herr (1979) emphasized that nonvocational education could be classified roughly into those programs which have no trade or occupational emphasis at all, those for college preparatory students or whose major purpose is socialization or acculturation. For the purpose of this study, it is defined as those programs whose major emphasis is NOT to prepare an individual for entry-level employment upon graduation from high school.

Socioeconomic Status:

Socioeconomic status (SES) is defined as the rank an individual occupies in society; it is usually measured by years of education, prestige of occupation and income (Cole, 1979, p. 335). In this study, it is represented by the years of education of the head of household.

Summary

Li (1981) emphasized that with the passage of the Smith-Hughes Act in 1917, and other acts thereafter, vocational education became a major educational program in the United States. Legislation mandated that the federal government provide financial assistance to the states in order to facilitate occupational training at the secondary school level. The Acts established the original program of matching grants for state effort to provide vocational education for national growth.

From 1917 to date various vocational education acts broadened the scope of vocational education. The content of vocational education, which had been concentrated primarily in agriculture, home economics, and trades and industry, was expanded to include all existing, emerging and anticipated occupations requiring less than a baccalaureate degree.

To date, public-assisted vocational education programs enroll 15 million people, more than the combined population of Ohio and Michigan, and the programs consume roughly a billion dollar from the public sector (Grand & Lind, 1978). The large amount of money invested in vocational education has generated much debate.

The question asked by the critics of vocational education, policymakers, and legislators is: What are the effects or benefit of vocational education and do the benefits jus-

tify the expenditure? This has led many researchers to pursue the question of the relationship between secondary vocational education and post-high school achievements such as the labor market achievement using in-school and socioeconomic background variables to seek answers to their research problem (Hauser & Featherman, 1977; Sewell & Hauser, 1975; Thomas, Alexander, & Eckland, 1979; Wiley & Harnischfege, 1980; Wilms, 1984). Existing research shows contradictory evidence concerning the effects of vocational education and the labor market success of high school graduates. Several researchers have found no effect or a negative effect (Grasso, 1975; Wiley & Harnischfege, 1980; Wilms, 1984). Others have found positive effects (Copa & Forsberg, 1981; Ghazalah, 1981; McCaslin, 1982).

In order to determine the successful adjustment of high school graduates to the world of work and to determine the success of vocational programs in achieving its purposes, it is necessary to continue to follow up former students through more research in this area.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this study was to investigate the relationship between selected student characteristics, participation in vocational education and the labor market achievement of high school graduates. In order to facilitate this investigation, literature describing research related to the variables used in this study was reviewed. This chapter presents the summary of the review of research pertaining to the theoretical framework rationale and procedures used in this study.

Labor Market Achievement

School to Work Adjustment and Indicators of Labor Market Achievement

Lofquist and Davis (1969) stated that work adjustment and the length of time individuals remained in a particular job were a function of both job satisfaction on the part of the employee and job satisfactoriness of such employee to the employer. Schowalter (1974) found that the criterion variables specified by the work adjustment theory are job satisfaction and job satisfactoriness. Job satisfaction and job satisfactoriness were both labor market achievement and/or work adjustment from the viewpoint of the individual em-

ployee, educators and policymakers, respectively. Job satisfactorines is also a function of the corresponence between the individual's abilities and the ability requirements of the job. Job satisfactoriness is work adjustment viewed from the perspective of the employer.

Job Satisfaction and Job Satisfactoriness

Work adjustment has two major components: job satisfaction and job satisfactoriness. Job satisfaction represents the intrinsic employee attitudes toward work adjustment. Job satisfactoriness, however, represents the employer's extrinsic evaluation of the employee's performance. But job satisfaction and job stisfactoriness are the two sides of work adjustment as viewed by the employee and the employer, and both combine to make up labor market achievement. Work adjustment is the broader "process occurring throughout a person's life and by which the individual interacts and comes to term with his work environment" (Betz, Weis, Davis, England, & Lofquist, 1966, pp. 4-5).

Educators need to be able to predict work adjustment and/or labor market potentials from personal factors so that curriculums can be modified and optimal use of individual potential can be achieved (Crites, 1979, p. 340).

Betz, Weis, Davis, England, & Lofquist (1966) stated that the criterion variables specified in work adjustment theory are satisfaction and satisfactoriness. Satisfaction

is a function of needs and satisfactoriness is a function of abilities.

Satisfaction included overall job satisfaction and satisfaction with various specific aspects of the individual's work environment, such as his supervisor, his co-workers, his working conditions, hours of work, pay, and type of work. It includes the satisfaction of his needs and the fulfillment of his aspirations and expectations and the similarity of his interests to those of successful persons working in his chosen occupation (p. 3).

Satisfaction is work adjustment and/or labor market achievement from the viewpoint of the individual employee. The five major components of satisfaction are general satisfaction, satisfactoriness with working conditions, supervision, compensation and co-workers. Satisfaction is an internal indication of the extent to which the work environment fulfills an individual's requirements.

Schowalter (1974) summed up the importance of research endeavors in these areas succinctly in the following words:

Research which does not take these two components (job satisfaction and job satisfactoriness) into consideration may have a base too general to be applicable to reality. Therefore, research concerning work adjustment and/or labor market achievement should allow two lines: prediction of job satisfaction and the prediction of job satisfactoriness. (p. 28)

Academic Achievement

Academic achievement can be defined as measures of accomplishment and ability respectively. Academic achievement is measured by students' grade point average (GPA) and the performance on nationally standardized achievement tests. Achievement tests like other types of tests have been widely criticized for being biased and their validity has also been questioned because of the often uncertain relationship between inventoried achievement and level of classroom performance (Foltz, 1978). Seligman (1980) described achievement test as looking backward to assess how much individuals have learned about certain subjects or how much they have gained from a course or from some part of their education.

Super and Crites (1982) highlighted the fact that achievement tests seem to predict future level of academic achievement as well as or better than intelligence tests. Seligman (1980) enumerated that achievement test can be used for the following:

1. To provide an objective measure of how much a person has learned.
2. To indicate the relative standing of that person's level of learning in a group (class, school, nationwide sample).

3. To indicate whether, and in what educational area, a person is in need of remediation.
4. To indicate in what area a person seems to have marked academic strength. (p. 38)

Measures of Academic Achievement

. Grade point average and test scores of many different types of nationally standardized academic achievement tests have been used constantly in the academic and labor market arenas to measure the accomplishment and ability of individuals. The notion that there is a direct relationship between academic measures such as GPA and performance on nationally standardized achievement test scores is commonly assumed by employers, educators and policymakers alike. The assumption therefore underlines the widespread use of academic achievement measures to determine income, pay raises and the job satisfactoriness of employees in the labor market. The assumption has also been commonly used to exclude low-achieving students and employees from pay raises and other labor market achievements (Butler, 1976; Muchinsky & Hoyt, 1973; William & Harrel, 1964).

Review of previous studies revealed that GPA has been widely criticized as a predictor of occupational success. Grading as a measure of success can be quite confusing; errors in grading and questions about grading techniques often arise. Often, grades do not follow a normal distribution;

the question then is: Was the population normally distributed? Grades frequently have no description of what they represent other than average, superior, below average, etc.; grades may have been assigned from a norm reference group or by criterion referenced procedures. For a prediction study to be of value as a counseling tool, evaluation of students must lend itself to a descriptive rating scale that explains what is being evaluated and lends itself to understanding (Travers, 1955, p. 364).

Affects of Academic Achievement Upon Labor Market Achievement

Since the turn of the century, there have been numerous research studies that have probed the relationship between academic achievement and successful achievement in the labor market after graduation. There is an assumption that a direct relationship exists between academic achievement and future occupational success. This assumption remains a continuing part of the selection process of prospective employees for jobs and for determining pay. Review of available research showed that academic achievement measures have been the chief interest of employers. Hoyt (1965) pointed out that grade had been widely used by employers to evaluate applicants for job vacancies. An extensive study in San Mateo, California, in 1976 revealed that 80% of the graduates of a high school in San Mateo were asked about their grades by

potential employers (San Mateo Union High School District, 1978).

Research findings about the use of academic achievement measures in predicting labor market achievement have been highly varied and inconsistent. Most of the research has suggested that the relationship between grades, GPA, and success on any job is minimal. Reports of academic achievement, especially GPA, as a poor predictor of labor market success are not uncommon. For example, Hoyt (1965) reviewed 46 studies conducted between 1902 and 1965 and found that the association between grade and labor market achievement was small and possibly near zero. His conclusion could be summed up thus:

It is no secret that academic achievement, does not predict occupational or labor market success Research strongly suggests that academic achievement, especially GPA bears little or no relationship to any measure of occupational accomplishment. (p. 3)

Nelson (1975) pointed to the fact that because grades on tests and the GPA vary widely from school to school, they may be of little value in predicting success either in specific occupations or in other adult accomplishments. Technical inadequacies of research in this area makes it difficult to draw conclusions. Much empirical evidence implies that GPA is a poor predictor of later vocational achievement (Hoyt, 1965; Nelson, 1975). Muchinsky and Hoyt (1973) in a more recent study found that high school seniors'

GPA was of some value in predicting overall occupational success, however, the magnitude of the relationship was too small to have practical value. Their conclusion therefore suggests that employers would do well to treat GPA as a largely irrelevant variable when predicting labor market achievement.

Nelson (1975) discussed several studies and concluded that "although technical inadequacies of much research in this area make conclusions about the effect of academic achievement upon labor market achievement difficult to draw, much empirical evidence implies that GPA is a poor predictor of later vocational or labor market achievement" (p. 1). O'Leary (1980) was the first to use statistical procedures to synthesize research results across studies. He found that the mean correlation between GPA and job success, weighted by the size of the sample, was .17 showing a slight relationship between GPA and job success.

Butler (1976) also reported that GPA correlation with labor market achievement is better in his study than past studies revealed. He cited that academic grade can be used successfully in the investigation of occupational success if such GPA represents a reliable estimate of a student's academic achievement. Muchinsky and Hoyt (1973) supported this point of view by stating that grades probably represent the teacher's judgement of how well the course content is mastered by an individual. They may not reflect teacher's ob-

ervation of the student's originality, dependability, precision, care, and so on. Perhaps such factors are observed by teachers but are not reflected in assessment of academic accomplishment and consequently in the awarding of grades. If grades reflect this observation, then they would serve a better purpose in representing abilities. This would increase the value of grade point average in assessing individuals' ability and accomplishment. Three other studies reported that grade point average (GPA) and scores on some nationally standardized achievement tests correlate significantly with measures of occupational success (Butler, 1976; Calhoun & Reddy, 1968; Keenan & Scott, 1985).

Job Satisfaction and Academic Achievement.

Although a significant correlation has been found between academic achievement measure such as GPA and job satisfaction, the relationship is generally a weak one (Campbell & Klein, 1980). Similarly, a modest relationship has been found between education and job satisfaction. However, there is a tendency for workers with college degrees to feel more satisfied with financial rewards and challenges of their jobs and for workers who are over-educated in relation to their work to be particularly dissatisfied (Quinn & Baldi de Mandilovitch, 1977).

Nationally standardized achievement test scores of English and mathematics have been shown to have some relation-

ship to the job satisfaction enjoyed by employees. When employees are proficient in both the English language and mathematics they tend to feel happy at carrying out instructions relating to their job. This facilitates their job performance and indirectly promotes their job satisfaction.

Job Satisfactoriness and Academic Achievement.

George and George (1980) surveyed 15 organizations to ascertain the characteristics that identify unsatisfactory workers. Results of the study showed that unsatisfactory workers have insufficient training in English and mathematics and lack personal abilities needed for the job. Despite the elusiveness of the satisfactoriness concept, a number of researchers have attempted to identify personality, ability and educational factors which can predict job satisfactoriness. In a report on a two year follow-up of 550 graduates of Wisconsin high schools, Vandergost and Ingelles (1977) describe that academic achievement measures were one of the predictors of job satisfactoriness.

Contrary to this statement Cox (1981) presented the fact that measures of academic achievement have not generally been found to be good predictors of job satisfactoriness, although they are more successful in predicting the job satisfactoriness of women than men. Betz (1981), and Campbell and Klein (1981) emphasized that the greater the relationship between an individual's academic ability,

aptitude and the requirements of his/her job, the greater will be the job satisfaction and the better would be the job performance (job satisfactoriness). From the available research studies, one could infer that there is a strong relationship between an individual's academic achievement measures, GPA and their job performance (job satisfactoriness) and job satisfaction.

Income and Academic Achievement.

The relationship between labor market success and income has been the focus of numerous studies. There has been a widespread assumption that higher academic achievement leads to higher pay. This, however, has been found not to be true in various studies. Sewell and Hauser (1975) examined a causal model of academic achievement that demonstrated the influence of academic achievement on labor market outcomes. They found that some individuals with average to higher score on ability and achievement tests earn more money. However, this is not true for every individual in their study. Bridgman (1930), and Walters and Bray (1963) in similar studies found a .37 and a .33 correlation between grades and salary of graduates in their schools.

But Gambrill (1922) and Pallett (1965) in follow-up studies of college graduates reported findings of no correlation between academic grades and salaries.

Academic Aptitude

Academic aptitude tests like the academic achievement tests can be defined as measures of ability. Seligman (1980) described academic aptitude tests as providing a means for looking forward to predict how well a person might succeed in a particular endeavor. They are designed to predict a person's ability to learn or profit from an educational experience and/or the likelihood of a person's success in a given occupation. Academic aptitude tests are most commonly used to select individuals for educational programs, jobs or help clients gain a greater understanding of their potentials in order to facilitate career planning and decision making (Seligman, 1980, p. 88).

Aptitude testing was obscure in the early history of mental measurement. However, from 1900 to about 1915, significant work related to aptitude testing had started to appear in texts such as Introduction to the Theory of Mental and Social Measurement written by Thorndike (1962). In 1915, a number of aptitude tests began to appear, and preliminary work for other aptitude tests began to accelerate.

Thorndike and Hagen (1962) declared the period from 1930 to 1945 as a period of critical appraisal. During this period techniques and interpretations of aptitude tests changed. It was a period when the centers of attention shifted from that of measuring a limited range of academic

aptitude skills to evaluating aptitude of the whole range of educational and occupational objectives (Thorndike & Hagen, 1962, p. 6).

Thorndike and Hagen further noted that the period between 1945 and 1960 could be called the period of test batteries and testing programs proliferation. That period marked the development of the first real aptitude test batteries such as the General Aptitude Test Batteries (GATB). Others such as the Science Research Associate (SRA) and the Differential Aptitude Test (DAT), etc., soon followed.

Measures of Academic Aptitude

Academic aptitude test batteries generally measure ability and/or accomplishments in the following different areas, depending on the type, purpose and use of the aptitude batteries. The General Aptitude Test Battery (GATB), for example, measures aptitude in these eight areas: general intelligence, verbal ability, numerical ability, spatial ability, form perception, clerical perception, finger dexterity, and manual dexterity. The GATB is most recognized for its use in employment-aptitude testing. The Science Research Associate (SRA) which was used in this study measures students' aptitude in the following areas: English composition, reading, mathematics, English language, social science, science and applied science.

Although there are many different forms of aptitude test batteries, for different, specific and special uses, all seem to be used for the major purpose of vocational guidance and counseling.

Affects of Academic Aptitude Upon Labor Market Achievement

The review of the research literature shows that findings in the use of academic aptitude, like academic achievement, have been highly varied. Although there is a widespread assumption that there is a direct relationship between academic aptitude and labor market success, most authors in the field of educational measurement agree that the best predictor of student success in a given course, curriculum or job is the student's previous success in like or related courses. When no previous courses exist for prediction, other measures must be employed to predict success or achievement. One such predictor has been the different types of academic aptitude test batteries (Thorndike & Hagen, 1962; Travers, 1955).

Studies that are predictive typically equate success in a course of study with a letter grade earned in that course. While letter grade achievement can be considered a measure of success, any predictive value cited for an academic aptitude test battery in a correlation or prediction study is only applicable to situations employing the same grading criteria.

Job Satisfaction and Academic Aptitude

McClelland (1973) stated that academic aptitude test scores have been found to be highly correlated with school grades and later occupational success. Super and Crites (1982) found that the correlation between aptitude tests and occupational success and job satisfaction have generally not been high. The authors speculated that this was due to the fact that preparation for entry into an occupation and performance in the occupational role often require rather different abilities. An employee who lacks the aptitude for a job would become disillusioned and consequently become dissatisfied with his/her job.

Other studies, however, pointed to the fact that there is some tangible relationship between aptitude and job satisfaction (Betz, 1981; Campbell & Klein, 1981). They emphasized that the greater the relationship between an individual's abilities, interest, and aptitude and the requirement of the job, the greater would be the job satisfaction and the job performance of the employee.

Job Satisfactoriness and Academic Aptitude

Despite the elusiveness of the job satisfactoriness concept, a number of researchers have attempted to identify personality, ability and educational factors which can predict job satisfactoriness. In a report on a two-year follow-up of 550 graduates of Wisconsin high schools who had

been enrolled in an educational pilot program, Perrone (1969) described some relationship found between job satisfactoriness ratings assigned by supervisors and five subject predictor variables, among which was academic aptitude.

Responses received from 304 of 600 graduates surveyed in 1972, of whom 105 were females revealed that job performance (job satisfactoriness) variables rated by supervisors were aptitude in communication skills, work quality, work quantity, working with people, dependability, attendance, and over-all job performance. The result shows that academic aptitude in the area of communication significantly correlated with over-all job satisfaction of graduates (Pucel, 1982).

Income and Academic Aptitude

Research studies on the effect of academic aptitude on labor market achievement have been very scanty. However, it has been documented that academic aptitude is not a good predictor of income. Increase in academic aptitude or at best demonstration of adequate academic aptitude does not necessarily translate to increases in pay. However, Wiley and Harnischfege (1981) noted a negative effect on income for those employees who did not obtain any post secondary training or education, but not vice versa. Jepsen (1951) in a 1929-48 follow-up study of the graduates of a college found

that there was no correlation between academic standing, academic aptitude and the salary paid graduates. Mason (1965) in a similar follow-up study reported no relationship between levels of scholastic aptitude/achievement and level of income earned by graduates.

Socioeconomic Status and Academic Aptitude

Socioeconomic status (SES) can be defined as the rank an individual occupies in society; it is usually measured by years of education, prestige of occupation, and income (Cole, 1979, p. 335). Socioeconomic variables have been shown to influence adolescent occupational choice. Super (1970) stated that choosing an occupation today differs from previous trends. Two hundred years ago, social class and tradition were the dominant factors which determined individuals' occupations. This influence seems to be transmitted largely through adults or parents who are available to an individual as role models. Tseng (1981) described that those individuals from lower socioeconomic backgrounds see fewer role models of high occupational status in their family or neighborhood. Consequently, they tend to have lower occupational aspirations than do their more affluent peers.

Today, social class and family no longer solely predetermine an occupation. Each individual must select both his/her educational curriculum and his/her occupation. By

offering these choices to young people, public educators have accepted the responsibility to assist each individual in making that choice which will be most satisfying to him/her and most productive for society (Super, 1960, p. 152).

Measures of Socioeconomic Status (SES)

Socioeconomic status has typically been measured in different forms. The income earned by parents, their occupation, the educational level of parents, the number of children in a family and their birth order, or siblings, etc., have been used in various research endeavors. (Hauser & Featherman, 1977; Schowalter, 1974; Seligman, 1980; Thomas, Alexander, & Eckland, 1979; Wiley and Harnischfege, 1980)

Affects of SES Upon Labor Market Achievement

Career development theorists generally acknowledge that academic and labor market achievement can be affected by a multitude of factors. The most important of these factors is the socioeconomic factor (Seligman, 1980).

Jenson and Kirchner (1982) also acknowledged that perhaps the most important factor affecting individuals' career development and academic and labor market achievement is their parental background. They concluded that children (especially sons) tend to select careers which equal or surpass those of their fathers in status or prestige.

Sons tend to either duplicate the type and level of their father's education or work in their own occupational choices and education (Blanchard & Biller, 1981).

Levine (1976) concluded that socioeconomic status is directly related to intellectual development, education and labor market achievement and academic performance. However, in a more recent study, Kennan (1984) found that socioeconomic status was not related to employment success or labor market achievement of graduates.

Hoppock (1977) reported that socioeconomic influence and social status were more favorably related to job satisfaction than academic achievement. The literature lacks adequate information concerning the relationship between socioeconomic status and job satisfaction and job satisfactoriness. However, there is a wealth of information on the relationship of SES to income. Parental earnings have been found to correlate with son's expected earnings (Osipow, 1978), suggesting that some with highly educated and/or high salaried fathers will aspire to high-paying occupations while those with less economically successful fathers have lower aspirations (Blanchard, 1981).

Sewell and Hauser (1975), examining a causal model of socioeconomic achievement that demonstrated the influence of social origins on labor market outcomes, noted that: "One source of variation in earnings between persons of varying social origins is the differences in individual character-

istics of those persons. Those with higher status or origin . . . on the average tend to earn more money" (p. 2).

Welo and Copa (1982), drawing a similar conclusion, observed that student socioeconomic background status as indicated by father's and mother's education, and father's occupation were the strongest predictors of post high school education and employment status. On the other hand, Hauser and Featherman (1977) found a relationship between the background characteristics of father's education, father's occupation, family background, and number of siblings to be associated with educational achievement, occupational (labor market success) and income.

Participation in Vocational Education

A partial explanation for the apparent contradictions in much of the previously cited research stems from the manner in which the various researchers classified students as vocational or nonvocational.

A critical question that poses a challenge to many researchers is that of defining vocational students and participation in vocational education. Most studies, particularly the earlier studies, relied upon the student's self-report of participation. Some have argued that this is a valid procedure since the student is in the best position to know his/her status (Taylor, 1980). However, this is

viewed as a constraint by many others (Campbell, 1981; Copa & Forsberg, 1982; Welo & Copa, 1981).

Woods and Haney (1981) found widespread disagreement between the school's classification of a student as vocational and the student's perception of being a vocational student. They found only a 66% rate of agreement. Woods (1980) also found, in analyzing a subsample of former students from the 1970 census who were reinterviewed on vocational education participation, that 40% who had previously declared they had completed a vocational program changed their mind.

Thus, many researchers have recognized that differences in research findings between vocational and nonvocational students may be due to error in the self-report measure of curriculum (Welo & Copa, 1981). This has generated some skepticism about research findings using self-report data.

Measures of Participation in Vocational Education

Various methods have been tried in classifying participation in vocational education. Campbell (1981) suggested that the only way to determine the true participation and true vocational student is to assess motivation for entering the program. It would appear that many students who participate in vocational education are not participating for the reasons the programs were established. Wiley and Harnischfege (1980) estimated that nearly 60% of the students

enrolled in vocational education were simply taking classes and were not program participants; that is, many did not enroll in the program with occupational objectives. It would appear that what is vocational for some students may not be vocational for others (Creech, 1977).

Once defined, the vocational student is then compared to another group. Again, there are two dominant trends. One approach is to compare the vocational student, often all vocational students with no program differentiation, to the general track student (Grasso, 1975; Heyns, 1974; Thomas, Alexander, & Eckland, 1979; Weisberg, 1983; Wiley & Harnsichfege, 1980; Woods, 1980). The argument is that since these two groups are similar in socioeconomic status, achievement, and that racial differences are muted, this then is the fairest comparison.

A more promising trend in classifying vocational students evidenced in recent studies is to use transcript data to classify students. Campbell (1981) has analyzed longitudinal data bases using the amount and type of vocational education taken and establishing categories of participation. Students who had completed six or more credits in a particular field were labeled concentrators; those who completed three credits were labeled limited concentrators; those with two credits in a single vocational program were labeled concentrator-explorers; explorers had only one credit in a single field. Using this type of classification, Campbell

was able to assess more clearly the impact of participation in vocational education.

Affects of Participation in Vocational Education

Upon Labor Market Achievement

The participation of students in the vocational education curriculum is one of many forces that influence participants labor market achievements. Past research studies of both short-term and long-term effects of participation in vocational education have reported evidence that vocational education participants enjoy many different types of advantages in the labor market in the first and other subsequent years after graduation from high school. Some of these advantages are, but are not limited to, high job status, job search abilities, higher earnings, low unemployment, and higher job satisfaction and job satisfactoriness.

Gardner, Campbell, and Seitz (1982) in their study of the effects of participation in vocational education examined the extent to which graduates are active in the labor market, either working, or looking for work. They reported that in general people with concentration in any area of vocational education were more active in the labor market than those who had either no vocational education courses or are light participants. Desy, Campbell, and Gardner (1984) in their study of high school vocational education experiences in school and

in the labor market reported tht students who participated in vocational education enjoyed unsurpassed labor market advantages. This they summed up in these words:

It seems clear that the extent of vocational education is significantly related to participation in the labor market. The student's specific level of participation also seems to affect his labor market outcome in ways for which there is no obvious explanation at present. (p. 31)

Job Satisfaction and Participation in Vocational Education

Desy, Campbell, and Gardner (1984) stated that the most important findings to emerge from recent reserch endeavors is that former vocational students are likely to be more satisfied with their jobs than others. Mertens, Seitz, and Cox (1982) stated that among former vocational students, the extent of global job satisfaction varies. When personal and contextual characteristics are controlled, males with more vocational eductional training are significantly more satisfied with their jobs. Stromsdorfer and Fackler (1973) in a follow-up study of high school graduates found that vocational education students have a higher degree of job satisfaction than nonvocational education students. Welch (1980) compared data from 1,016 students in 50 work education programs with data from 696 students not in a formal work education program, but who were holding part-time jobs. Students in formal work programs (vocational) were reported to be significantly more satisfied with their jobs than stu-

dents not participating in a supervised vocational program. They concluded that students in vocational programs achieve greater job satisfaction because of the meaningfulness attached to a job which is closely related to their career goals.

Howell and Felstenhausen (1971) in a follow-up study of vocational education graduates found that 51% of the graduates reported job satisfaction related to working with people, whereas 54% indicated dissatisfaction related to job situation factors, such as specific undesirable tasks and working conditions. Graduates, however, felt that although they would like more employment experiences and instruction, their vocational programs had prepared them for employment, especially in getting along with others, using time, energy and handling new or unpleasant situations.

Job Satisfactoriness and Participation in Vocational Education

The extent to which vocational education graduates who are employed are considered by their employers to be well trained and prepared for employment has been the interest of many educators and policymakers. The Vocational Education Section (Title II) of the Educational Amendments of 1976 (PL 94-482) requires the collection of employer satisfaction data; Section 112 (3) of the 1976 Act states that "each State shall evaluate . . . the extent to which program completers

and leavers . . . are considered by their employers to be well-trained and prepared for employment" (p. 69). Researchers have studied what is defined as a satisfactory vocational employee, the extent to which satisfactoriness can be predicted, and how different programs of preparation relate to employee satisfactoriness.

Smiley (1976) in a study conducted to aid the effort of ascertaining how satisfied employers were with the completers and/or graduates they had hired, and in what areas of the vocational education program graduates need improvement reported that:

Fewer than 5% of the responding employers rated the vocational education system below average, 73% of the employers rated manual dexterity of vocational graduates and leavers above average and 47% ascribed the same rating to the graduates for the demonstration of practical job knowledge. Some specific employer comment was that "most of the vocational education graduates come to work with skills well developed, but the training programs have failed to offer the students anything that prepares them for moving into supervisory or managerial positions." Nearly 90% of the employers rated the vocationally trained employee high to average in comparison with those without the vocational training. Many however could not make a comparison because certification requirements for entry-level job placement prevented a nonvocationally trained individual from being hired. (p. 48)

Howell and Felstehausen (1971) in a follow-up study of Illinois home economics job training program reported the following findings as related to the job satisfactoriness of their graduates: Employers felt that the job training that

was received by graduates contributed to employability traits, especially in the areas of attendance, attitudes toward supervision, and cooperativeness. By and large, previous research demonstrated that vocational education graduates performed more satisfactorily on the job than nonvocational graduates.

Income and Participation in Vocational Education

A dichotomy of results exists when examining the effects of vocational education on income. Several researchers have found little or no effect on wages from participation in vocational education (Grasso, 1975; Mertens & Copa, 1981; Welo & Copa, 1982; Wiley & Harnischfege, 1980). Wiley and Harnischfege (1981) even noted a negative effect on income for those who did not obtain any post high school training or education. Further, obtaining employment in a job related to training was found by Conroy (1980) to be unrelated to higher earnings.

However, there is contradictory evidence on this issue. Several studies have shown a positive effect of participation in vocational education on income. Two researchers from outside the field of education have found measurable positive effects of participation in high school vocational education. Li (1981) and Ghazalah (1981) found vocational graduates earned 13% and 25% more than nonvocational graduates, respectively. Ghazalah's study was unique in that he used

Internal Revenue Service data tapes to investigate his research problems.

Eninger (1978) found that starting pay received by vocational education graduates was not significantly different from the starting pay received by nonvocational graduates. Kaufman and Lewis (1977) found that starting salaries for male graduates of vocational, academic, and general curricula were approximately equal, and that pay raises in the first jobs were generally comparable at equal time periods. The same general pattern existed for females, but female salaries were lower than those for males. In a study of the initial earnings of graduates of high school vocational education programs in Worcester, Massachusetts, Corrazinni (1976) found that only small differences existed between salaries of vocational and nonvocational graduates.

Kaufman, Schaefer, Lewis, Stevens, and House (1977) also found no significant salary differentials associated with types of curricula the students pursued while in high school. However, the authors concluded that while there was no pay-off in the form of an immediate wage increment obtained by graduates who received skill training, pay increases on the first job were more likely to accrue to the vocationally trained graduate.

Conroy and Diamond (1976) studied the average annual salaries for all Massachusetts vocational and nonvocational program graduates in 1969, 1973, and for both years combined.

The data were for students who did not seek post secondary education. No statistically significant differences were found, except in the average hourly pay between the 1973 vocational and nonvocational graduates. The slight difference was in favor of vocational graduates. This supports other studies that asserted that vocational graduates have higher pay advantages over nonvocational graduates.

Taussig (1978) studied differences in hourly earnings of graduates of New York City vocational schools. A comparison was made between graduates who were employed in training related occupations and graduates who were employed in other areas. The data revealed little difference in the earnings of the two groups. Richardson and McFadden (1975) examined the relationship between job relatedness and earnings of vocational education graduates at the beginning of employment, after six months of employment, and at the end of one year. A statistical analysis of initial earnings did not show significant differences between relatedness and mean salary level. Analysis of six months' earnings by job relatedness revealed that when all vocational programs were analyzed together, the graduates who were employed in nonrelated occupations received significantly higher salaries than graduates who were employed in related occupations. Earnings of the graduates by job relatedness one year after graduation indicated no significant differences.

The findings of all the above studies should be interpreted with caution. Little (1970) warned that information about earnings was misleading because:

Inconsistency in reporting practices, absence of knowledge about local labor markets, differences in wage levels between vocational programs, differences in levels of education and training, differences in geographic location, changes in the value of the dollar, and scarcity of comparative information about occupational status of graduates of non-vocational occupational programs make summaries of information expressed in dollars hazardous if not useless. (p. 8)

Li (1981), on the other hand, found significant positive effects on income for vocational graduates. His data were derived from a 5% sample of the 1980 census of persons 14 years old and older who were asked about their vocational high school training. His subsample included only those who were 18 to 29 years old in 1980 and who had graduated from high school and who had no post high school education. Li's study, like many others mentioned in the previous paragraphs, supports the notion that vocational graduates enjoy an income advantage over nonvocational graduates.

Other researchers and institutes also found positive effects on income for vocational education graduates. Russel and Miller (1980), McCaslin (1982), and the National Center for Educational Statistics (1982) found positive differences ranging from \$1,000 to \$2,000 per year for males who had six or more credit hours in a vocational education discipline and \$500 to \$1,500 more per year for females who had concentrated

amounts of vocational study. Campbell (1981) found, contrary to Conroy (1980), that earnings for those in training related occupations were higher than for those in unrelated jobs. In the "Vocational Education Study: Final Report" (1981), males from trade and industrial programs and females from office occupations programs were found to have significantly higher wages.

Affects of Sex Upon Labor Market Achievement

Gender is among the measurable individual attributes that influence decisions and have influenced labor market outcomes. The choice of high school curriculum itself is probably influenced by individual and contextual attributes such as sex. This in turn affects labor market outcomes. Seligman (1980) emphasized that the aptitude of boys and girls is not necessarily significantly different. Herr and Cramer (1982) said that girls tend to make career commitments earlier than boys and that this affects their labor market outcomes.

The part played by women in the labor force has changed greatly in recent years. In 1940 only 25% of the labor market participants were women; by 1960, this figure has grown to 42%. The change in the labor market participation grew from 42% in 1960 to 69% in 1979 and the percentage continues to increase today (Bureau of Labor Statistics, 1982).

Job Satisfaction and Job Satisfactoriness as Influenced by Sex

Gallup (1984) found that fewer women than men experienced satisfaction with their jobs. From the poll 62% of men reported that they were satisfied with their jobs while only 38% of women reported that they were satisfied. This is not surprising since entering into many professional and blue collar positions remain difficult for women. Bingham and House (1980) expressed that women have been rated by their employers as possessing adequate job satisfactoriness when compared to men. This is because women are more patient than men, they get along well with management and co-workers and they are more punctual on the job than men.

Income as Affected by Sex

Reports of the earnings of male and female in the labor market have been mixed. Levine and Mook (1984) reported that the earnings of females are smaller than males in the labor market. Much of the annual earning difference between male and female is explained by the fact that women are less likely to work full time schedules than men. The hourly wage difference between men and women was attributed in part to a difference that exists in average labor force experience between them.

Mellor (1984) in a study of the differences in weekly earnings of women and men found that the overall median

weekly earnings ratio of women to men employed full time did not change much between 1973 and 1978, it was only between 61% and 62%. The overall ratio of female to male earnings, however, did change significantly between 1979 and 1982. Sex-earning ratio rose from 61% to 84% after race and years of schooling completed were controlled.

O'Donnell (1984) in a study of the relationship between women's education and their allocation to the labor market stated that many human capitalist theorists argue that the employer will choose the job applicant whose educational credentials are most appropriate to the level of productivity demanded in the job. Many screening theorists argue that the employer will tend to choose the applicant with the most years of schooling. Through an investigation of the labor market situation of women, the author argued that the situation is more complex, and job allocation is influenced by male and female power relationship in the workplace.

Mincer (1974) stated that women's participation in on-the-job training is low because employers bear some of the cost of training and are unwilling to invest in female workers because of the chance of their withdrawal from the labor market in order to rear children. Mincer and Polachek (1974) claimed that since on-the-job training is costly in terms of foregoing earning, women who expect to drop out of the labor market maximize their earnings over the life cycle by avoiding employment which involves such training. They used the

concept of free choice to explain the labor market position of women in low wages area and in particular kinds of industries by arguing that the burdens and hazards in industrial areas may cause women to prefer a major domestic role and have a weak labor force attachment.

Summary

In summary, it seems that vocational education may have a positive influence on some people, but the participation of individuals in vocational education may not overcome the effects of socioeconomic status, sex, race, ability or achievement.

The principal methodological concerns raised by previous researchers in vocational education have been the limitations imposed by the inability to successfully and adequately define the vocational students, and to adequately control the nature of the control or comparison group. One fact which remains clear is that, depending on the manner in which vocational education is measured, the effects of participation will vary.

Data describing the patterns of participation by sex show that sex has a differential effect on whether or not vocational courses are taken. Within the pattern group, sex appears to be associated with the nature of participation. Not only are females more likely to participate in vocational

education, but they also show a greater tendency to be classified as the major concentrators.

The findings of previous studies also indicated that there are substantial differences of participation in vocational education among those from various socioeconomic levels; those differences are important variables in the relationship of student characteristics, student participation and labor market outcomes.

CHAPTER III
RESEARCH METHODOLOGY

The purpose of this section was to present the research methodology used in the study. Portions of this chapter include research questions, a description of the population for the study, the research design, instrumentation, data collection procedure and the analyses of the data.

Research Question

This study sought answers to the following question: What is the relationship between job satisfactoriness, income earned per hour, and job satisfaction of former students, one year after their graduation from high school and each of the following student characteristics:

1. Academic achievement
2. Academic aptitude
3. Socioeconomic status (SES)
4. Degree of participation in vocational education
5. Sex

Population for the Study

The population for the study was all of the 1983/84 graduates of the high school under study in southwest Virginia who were employed following graduation. The deci-

sion to use the entire population, rather than a sample selected through one of the sampling methods, was made because the total graduating class consisted of 393 individuals, a number that was manageable in terms of finance and practicality. On the other hand, not all students in the graduating class were members of the population. Only those graduates who were working either part-time or full-time were included in this study. Names and addresses of all graduates were obtained from the high school under study. The names of graduates' employers were obtained from the working graduates.

Research Design

This study was designed to follow-up the graduates of a comprehensive high school in S. W. Virginia. The study used the questionnaire survey method to gather the data needed to answer the research questions outlined in Chapter I. It was designed to provide a description of the relationship between the selected students characteristics, participation in vocational education and the current status of the labor market achievement of the high school graduates under study. The study is therefore of a descriptive follow-up research design in nature.

Instrumentation for the Study

Three types of instruments were constructed to gather the relevant data used in this study. They were:

1. The Student Academic Record Coding Sheet
2. The Student Follow-up Instrument
3. The Employer Follow-up Instrument

The Student Academic Record Coding Sheet

The student academic record coding sheet instrument was designed by the researcher, and Janice McBee and Bob Wicklein who are research colleagues. It was designed initially for the collection of student academic record data for the education and work project, which was undertaken by the Division of Vocational and Technical Education at Virginia Tech and the high school under study. The instrument was used to collect data on all students' academic records, student and family information, and extracurricular activities. (A sample of this instrument may be found in Appendix A.)

The Student Follow-up Instrument

This instrument (see Appendix B) was designed to collect the follow-up data from the high school graduates. The data obtained were those relevant to graduates' labor market achievement, income, and job satisfaction.

The Employer Follow-up Instrument

The employer follow-up instrument was designed to collect the relevant data from graduates' employers (see Appendix C). The employers were to rate the employees as poor, below average, average, above average, or excellent in 15 different areas ranging from the quality of work, to compliance with company policies, rules and practices. The employers were also asked to compare the employee with other workers in the same work group and rate the employee's overall competence, effectiveness, and work attitudes for successful job performance. The above data were used to ascertain the employee's job satisfactoriness.

Refinement and the Validity of the Instruments

Drafts of the instruments were sent to expert review panels at two different levels. Individuals such as professors, teachers, and program directors who are authorities in the areas of research, career development, and counseling, comprised one review panel. The second review panel consisted of typical area employers. Both panels were asked to review the questionnaires on four different occasions to ascertain:

1. If any of the items seemed insignificant or misleading.

2. If the meaning of any statement or question was not clear.
3. If the instruments were representative of what they were supposed to measure (construct and face validity).

Changes were made to accommodate suggestions. The refined student follow-up questionnaire required approximately 10 to 15 minutes for completion while the employer follow-up questionnaire required approximately 5 to 10 minutes for completion.

Pilot Testing of the Instruments

The instruments were pilot tested before they were used to collect the data for the study. The purpose of the pilot study was to: (a) identify problems with the administration of the instrument by using a sample of subjects similar to those in the population to complete the questionnaire; and (b) identify any items which seemed misleading or unclear to the representative sample.

Participants in the pilot test were high school graduates who were employees of a machine manufacturing plant and students at a community college in the area. They were used in the pilot testing because they seemed to be homogeneous to the population under study.

Immediate supervisors at the same manufacturing plant and members of the local chamber of commerce were asked to visualize a typical high school graduate in their employ on whom they were to complete the items on the instrument. They were chosen to take part in the pilot testing of the employer follow-up instrument because they represented a broad spectrum of area employers and were similar to those individuals who would be receiving the questionnaire.

Reliability of Follow-up Instruments

For the instruments used in this study, an internal consistency reliability was computed. This reliability is the best measure of reliabilities for the instruments used because "it indicates how much random variation there is within a scale of several items in comparison with the variation between total scores of individuals who took the scale" (Slavin, 1984, p. 210). Therefore, the best measure of the internal consistency reliability of the instruments was the coefficient alpha. The coefficient alpha provides a reliability estimate for a measure composed of items scored with values other than 0 and 1 (Cronbach, 1970).

Using the SPSS program, the Cronbach alpha reliability of the instruments was calculated. The results are presented in chapter IV.

Data Collection Procedures

The survey method was used to gather the research data for this study. Dillman's (1978) "Total Design Method (TDM)" for surveys was used as a foundation in the preparation of the research design. To conduct the survey research required for this study, mail questionnaires were developed as the research instrument.

Dillman (1978) noted that there are three things that must be done to maximize survey response: minimize the costs of responding, maximize the rewards for doing so, and establish trust that those rewards will be delivered. This study sought to meet the above three requirements in the following ways: (a) it emphasized to the respondents the importance of the study, and how it could help their school authorities understand their problems and concerns for a better development of programs that will make their transition from school to work better and smoother for them and other students yet to graduate; (b) the questionnaires were sent to the respondents with self-addressed and stamped envelopes; and (c) the respondents' trust was established by assuring them that their names and identities will be held confidential by assigning a code number to each one of them.

Methods Used To Maximize Return of Questionnaire

In an effort to boost the return rate of questionnaires, two methods were used. The first method consisted of asking

each respondent to return a completed questionnaire by a specific date to be eligible to participate in a drawing to be made from all returned questionnaires. Five randomly selected respondents were awarded \$25 each for completing and returning the questionnaire. The subjects were assured that their responses would not be associated with them individually in the analysis, results, and interpretation of the data (Dillman, 1978). The cover letter accompanying the questionnaire had the high school's emblem on it and it was signed by the high school principal assuring the respondents that this was a legitimate and authorized study (Appendix D).

The second method involved follow-up procedures planned to insure the maximum possible number of responses. Two weeks after the initial mailing, a reminder letter was sent to all the graduates who had not responded (see Appendix C). After an additional week, a second questionnaire, a stamped pre-addressed return envelope and a cover letter further explaining the importance of their response to the success of the study was mailed to nonrespondents. Graduates who had not responded within two weeks following the mailing of the second questionnaire were classified as nonrespondents. An outline of the entire data collection operation and time schedule is provided in Figure 1.

- May 13-14, 1985 - Mail out all questionnaires
- June 3, 1985 - Mail post-card reminder to non-respondents
- June 24, 1985 - Mail out second questionnaire with a cover letter emphasizing the importance of respondents' response to the success of the study
- July 8, 1985 - Cut-off date to be classified as a nonrespondent
- July 9-10, 1985 - Telephone nonrespondents and ask them the asterisked questions (see Appendix C).

Figure 1. Operation time schedule.

Follow-up of Nonrespondents to Determine Bias

Nonrespondents were telephoned to ascertain why they had not responded and to obtain their responses to the major items needed for this study. They were asked only the asterisked questions on the questionnaire (Appendix B). A description of nonrespondents is in Table 1.

Statistical Analysis of the Data

Since the study was descriptive in nature and included the total population, the analysis of the data was limited to descriptive statistical methods. In order to answer the questions posed in Chapter 1, Multiple Regression Analysis (MRA) was used. Multiple Regression Analysis is a descriptive statistical technique used to analyze the relationship between a dependent variable and a set of independent or predictor variables.

It is used in this study to investigate the relationship between each of the following dependent variables (income earned per hour, job satisfaction and job satisfactoriness) and the selected student characteristics used as the independent variables.

Kim and Kohout (1975) state the following concerning Multiple Regression technique:

The most important uses of the technique as a descriptive tool are: (1) to find the best linear prediction equation and evaluate its prediction accuracy; (2) to control for other

Table 1

Description of the result of telephone nonresponse bias check

	<u>N</u>	<u>%</u>
Total nonrespondents	161	41.0
Nonrespondents reported to be in military service	29	7.4
Nonrespondents reported by parents to be away from home and with address unknown	22	5.6
Nonrespondents exclusively going to school	58	14.8
Nonrespondents reported as unemployed	31	7.9
Nonrespondents reported as full-time homemakers (female)	21	5.3

Note.

All the graduates who were working responded to the questionnaire. Therefore, while nonrespondent bias might exist in terms of the total graduating class, none exists in the population of concern to this study, working graduates.

confounding factors in order to evaluate the contribution of a specific variable or set of variables; and (3) to find structural relations and provide explanations for seemingly complex multivariate relationship. (p. 321)

The SAS subprogram stepwise regression procedure of the MRA was used. Stepwise procedure is useful when a researcher has many independent variables and wants to find which of the variables should be included in a multiple regression model.

The SAS Users' Guide (Anonymous, 1982) states that stepwise procedure is most helpful for exploratory analysis, because it can give an insight into the relationship between the independent variables and the dependent or response variable. Stepwise, however, is not guaranteed to give the "best" model for one's data, or even the model with the largest R^2 (SAS Users' Guide, 1982, p. 101).

Forward Selection Technique

The forward-selection technique was used with the stepwise procedure. This procedure begins with no variables in the model. For each of the independent variables, FORWARD selection calculates F statistics reflecting the variable's contribution to the model if it were to be included. These F statistics are compared to the value that is specified in the model statement (i.e., to .50 significance level). If no F statistic has a significance level greater than the value specified in the model, FORWARD selection stops. Otherwise, FORWARD adds the variable that has the largest F

statistic to the model. FORWARD selection then calculates F statistics again for the variables still remaining outside the model, and the evaluation process is repeated. Variables are thus added one by one to the model until no remaining variable produces a significant F statistic (SAS Users' Guide, 1982, p. 102).

Multicollinearity as It Affects Multiple Regression Analysis

Multicollinearity, a problem usually associated with the use of Multiple Regression Analysis, has been defined in many different ways by many researchers. Pedhazur (1982) defined multicollinearity as the correlations among independent variables which may lead to difficulties in the estimation of regression statistics. The author contended, however, that there is no consensus among researchers as to the meaning of the term multicollinearity. Some researchers use the term to refer to the existence of any correlations among the independent variables, whereas others reserved the term for describing a situation in which the independent variables are highly correlated, although there is understandably no agreement on what "high" means. However, Pedhazur (1982) and Norusis (1982) stated that highly correlated should be taken to mean independent variables that have a correlation of .8 or .9 with other independent variables. Therefore, such

variables need to be deleted as a means of minimizing multicollinearity.

Proposed Solutions to the Problem of Collinear
Data or Multicollinearity

Chatterjee and Price (1977) stated that multicollinearity is a condition associated with deficient data and not due to misspecification of the stated model. Pedhazur (1982), therefore, said that probably the solution that first came to mind as a solution to multicollinearity is to delete variables that have been identified as causes of high multicollinearity.

A second method of correcting multicollinearity proposed by Pedhazur is the collection of additional data in the hope that this may ameliorate the condition of high multicollinearity.

In conclusion, Pedhazur (1982) emphasized that it is important to note that none of the proposed methods of dealing with high multicollinearity is free of problems or constitutes a cure. High multicollinearity is symptomatic of insufficient or deficient information, which no amount of data manipulation can rectify.

However, a word of triumph pointed out by Pedhazur is that high multicollinearity does not pose difficulties when

the researcher's sole purpose is the determination and interpretation of R^2

Detection and Correction of Multicollinearity in Data

Consideration has been given to the possible effect of multicollinearity on the data and analysis in this study. To test for linearity of data and to correct for multicollinearity the following steps were taken:

1. A regression scattergram was plotted to ascertain the linearity of the data used. Line of best fit and the gradient of the line were constructed. The equation of the line of best fit shows linearity of data.
2. Independent variables that were found to have very high correlations ($r > .80$) with other independent variables were deleted from the list of variables, a procedure suggested by Pedhazur (1982) and Norusis (1982). Since the purpose of this study was not to investigate the relationship among independent variables, the following independent variables that were highly correlated with one another were deleted to minimize the effect of multicollinearity: SRA - Composition, SRA - Reading, SRA - Social Studies and SRA - Science. The variables deleted were also not supported by the literature as having any relationship with graduates' labor market achievement.

Strength of Relationship Test

Since this was a descriptive study, no inference was to be made to a larger population, and a strength of relationship test rather than a statistical significance test was used to determine the importance of the relationships found between the dependent and the independent variables. Multiple regression and partial correlation together institute the type of control necessary to answer the research questions relating to the strength of relationship test in this study. Cohen's criteria would then be used to state the strength of relationship observed. Cohen (1977) provided the following as criteria for determining the strength of relationship existing between independent and dependent variables: "small effect size: $r^2 = .01$ or $r = .10$; medium effect size: $r^2 = .09$ or $r = .30$; large effect size: $r^2 = .25$ or $r = .50$ " (pp. 79-80).

Summary

The population used in the study included all 1983/84 graduates of the high school under study and their employers. Questionnaires were designed (see Appendix B and C) for gathering the data needed to fulfill the purposes of the study. They were then constructed, presented to a panel and were later pilot tested for revision and refinement. The refined questionnaires, a cover letter and a stamped pre-

addressed return envelope was mailed to each graduate and graduate's employer. A telephone follow-up procedure was utilized for all subjects who did not respond to the first or second questionnaire to ascertain how their responses differ from those who responded to the questionnaire.

Various parts of the SAS (statistical analysis system) and the SPSS (statistical package for the social sciences) were used to compute the means, ranges, standard deviations, analysis, followed by the stepwise multiple regression and the partial correlation procedure.

CHAPTER IV
FINDINGS AND ANALYSIS OF DATA

The purpose of this study was to investigate the relationship between selected student characteristics (academic achievement, academic aptitude, socioeconomic status, degree of participation in vocational education, sex) and the labor market achievement (job satisfactoriness, income earned per hour, job satisfaction) of high school graduates. This chapter presents the findings and analysis of data. The results of this study are presented in four sections: The reports of the reliability of the instruments; the results of the descriptive statistics for the variables used; the results of a regression analysis used to predict the labor market achievement of graduates; and the strength of relationship test.

Reliability of Instruments

Using the SPSS program, the Cronbach alpha reliabilities of the instruments used were calculated. The results were as follows:

Student (job satisfaction) questionnaire

alpha = .83

Employer (job satisfactoriness) questionnaire

alpha = .97

The instruments used appeared adequate in view of the size of their internal consistency reliability coefficients.

Descriptive Statistics for Variables Used

Table 2 shows the descriptive statistics for the variables used in this study. The results show that the mean job satisfaction score of graduates was 32.0 with a standard deviation of 5.10. The highest possible score was 44.0. Boss (employer) satisfaction, which measures the job satisfactoriness of graduates, had a mean of 60.0 and a standard deviation of 11.50. The highest possible score was 75.0. The mean hourly pay (income) of graduates was \$4.02 per hour. The lowest pay for graduates was \$1.72 per hour. However, this was the wage paid graduates who were waiters/waitresses. The pay excluded the tips and commissions which fluctuate widely with business and sales. The highest hourly wages paid to two graduates under study were \$8.94 and \$8.50, respectively. This, however, deviates from the norm. The students who earned these wages had been working for a private industry for five years prior to graduating from high school. Therefore, they had enjoyed numerous pay increments prior to graduation. The average grade point average of graduates was 2.6 on a 4 point scale.

Table 2

Descriptive statistics for student characteristics variables

Variable	<u>N</u>	Range	Mean	Standard Deviation
JobSat	105	29.0	32.1	5.1
BossSat	105	42.0	60.0	11.5
HRMONEY	105	7.2	4.0	1.0
GPA	105	2.7	2.6	0.6
VCT-Read	105	37.7	83.8	7.4
SRA-Math	105	600.0	441.6	79.0
SRA-Lang	105	435.0	411.0	62.7
SRA-App	105	405.0	441.7	66.8
Head Ed	105	6.0	2.6	1.7
VTE-Credit	105	15.0	8.7	3.3

The mean score on the educational level of head of household was 2.6. This means that the average head of household (either parent) of graduates had graduated from high school. The mean credit hours of vocational education taken by graduates was 8.7. The descriptive statistics for achievement and aptitude test variables are shown in Table 2.

Prediction of Job Satisfactoriness of Male Graduates

Grade point average (GPA), score on the Virginia Competency Test (VCT-Reading), score on the Science Research Associates (SRA) tests (math, language, applied science), socioeconomic status (educational level of head of household, Head Ed) and credit hours of vocational education were included in the proposed regression equation. However, only four variables (GPA, Head-Ed, VCT-Read, SRA-App) appeared in the regression model when a stepwise procedure was used. These predictor variables accounted for 8.0% of the variance in the job satisfactoriness of male graduates (see Table 3). Table 3 also indicates that all the four variables that appeared in the equation model did not contribute substantially to the variance in the job satisfactoriness of male graduates. In order of their contribution, these variables were GPA, Head-Ed, VCT-Read, and SRA-Applied. All except

Table 3

Results of stepwise regression procedure in predicting male graduates' job satisfactoriness (employer or boss satisfaction)

(N = 45)

Step	Variable Entered	R ² ^a	Standard Error	B ^b
1	GPA	.03	4.35	3.07
2	Head Ed	.06	1.03	-1.12
3	VCT-Read	.07	.46	.50
4	SRA-App	.08	.05	-.04

Note

^aValues shown are for the whole model as the variables entered the equation.

^bValues shown are for the whole model as the variables entered the equation.

Head-Ed and SRA-App were positively associated with job satisfactoriness. This means that those male graduates who had high academic achievement, low academic aptitude and low socioeconomic status tended to be more satisfactory to their employer (possess high job satisfactoriness) than those with low academic achievement, high academic aptitude and are from high socioeconomic status.

Prediction of Job Satisfactoriness of Female Graduates

The credit hours of vocational technical education (VTE-Credit), and score on the Science Research Associates test in applied science (SRA-App) were the two variables that were included in the regression model. These predictor variables accounted for 14.0% of the variance in the job satisfactoriness of female graduates (see Table 4). Table 4 also indicates that the two variables that appeared in the equation output contributed in a tangible way to the variance of the job satisfactoriness of female graduates. In order of their contribution, the variables were VTE, SRA-App; VTE alone contributed 12%. This shows that VTE is the most important contributor to the variance. Therefore, those female graduates who took more credit hours of vocational technical education would tend to be more satisfactory to their employers (possess high job satisfactoriness) than those who

Table 4

Results of stepwise regression procedure in predicting female graduate job satisfactoriness (employer or boss satisfaction)

(N = 60)

Step	Variable Entered	R ² ^a	Standard Error	B ^b
1	VTE-Credit	.12	.43	1.32
2	SRA-App	.14	.02	.02

Note

^aValues shown are for the whole model as the variables entered the equation.

^bValues shown are for the whole model as the variables entered the equation.

took fewer credit hours of vocational technical education and possessed low academic aptitude.

Prediction of Male Graduates' Income

Grade point average (GPA) was the only variable that appeared in the final step of the regression model. It accounted for 3% of the variance in predicting the income earned per hour by male graduates (Table 5). Table 5 also indicates that GPA, that appeared in the equation output did not contribute very much to the variance in predicting male graduates' income. GPA was noted to have an inverse relationship with male graduates' income. This means that male graduates who had high academic achievement tended to earn lower income per hour than male graduates who had low academic achievement.

Prediction of Female Graduates' Income

Educational level of head of household (Head-Ed), and the credit hours of vocational education (VTE-Credit) appeared in the regression model. These predictor variables accounted for 3% of the variance in the income of female graduates (see Table 6). Table 6 also indicates that the two variables that appeared in the equation output did not contribute very much to the variance in the income earned by female graduates. In order of their contribution, these

Table 5

Results of stepwise regression procedure in predicting male graduates income earned per hour
(N = 45)

Step	Variable Entered	R ² ^a	Standard Error	B ^b
1	GPA	.03	.31	-.38

Note

^aValue shown is only for the variable for the model.

^bValue shown is only for the variable for the model.

Table 6

Results of stepwise procedure predicting female graduates
income earned per hour (N = 45)

Step	Variable Entered	R ² ^a	Standard Error	B ^b
1	Head Ed	.02	.08	-.09
2	VTE-Credit	.03	.04	.04

Note

^aValues shown are for the whole model as the variables entered the equation.

^bValues shown are for the whole model as the variables entered the equation.

variables were Head-Ed, VTE-Credit. However, Head-Ed has an inverse relationship with female graduates' income. This means that female graduates who were from low socioeconomic status and had more credit hours of VTE earned more money than did those from high socioeconomic status with fewer credit hours of VTE.

Prediction of the Job Satisfaction of Male Graduates

The educational level of head of household (Head-Ed) and the number of credit hours of vocational technical education were the only variables that appeared in the final regression equation. These predictor variables accounted for 8.0% of the variance in male graduates' job satisfaction (Table 7). Table 7 indicates that the two variables that appeared in the model output did not contribute substantially to the variance in the job satisfaction of male graduates. Both Head-Ed and VTE-Credit have an inverse relationship with male graduates' job satisfaction. This means that male graduates with low socioeconomic status tended to be more satisfied with their jobs than male graduates from high socioeconomic status. Male graduates having more credit hours of VTE tended to be less satisfied with their jobs than were those taking fewer credit hours of VTE.

Table 7

Summary: Results of stepwise regression procedure in predicting male graduates job satisfaction
(N = 60)

Step	Variable Entered	R ² ^a	Standard Error	B ^b
1	Head Ed	.05	.44	-.81
2	VTE-Credit	.08	.25	-.30

Note

^aValues shown are for the whole model as the variables entered the equation.

^bValues shown are for the whole model as the variables entered the equation.

Prediction of Female Graduates' Job Satisfaction

Science Research Associates-English Language (SRA-Lang), the number of credit hours of vocational education (VTE-Credit), and grade point average (GPA) were the only three variables that appeared in the final regression model. These predictor variables accounted for 9.0% of the variance in the job satisfaction of female graduates (see Table 8). Table 8 also indicates that all three variables that appeared in the equation output did not contribute very much to the variance in female graduates' job satisfaction. In order of their contribution these variables were: SRA-Lang, VTE-Credit, GPA. All the variables had a positive relationship with female graduates' income. This means that female graduates with high SRA-English language, more credit hours of VTE and high GPA tended to be more satisfied with their job and those who had low SRA-English language, fewer credit hours of VTE and low GPA tended to be less satisfied.

The Strength of Relationship Test

The regression equation gave an overall variance explained by the independent variables that entered the model for a particular dependent variable. A partial correlation was calculated to test the strength of relationship between each independent variable and a particular overall dependent variable while the effect of other variables are controlled.

Table 8

Results of stepwise regression procedure in predicting
female graduates job satisfaction
(N = 60)

Step	Variable Entered	R ^{a2}	Standard Error	B ^b
1	SRA-Lang	.05	.01	.02
2	VTE-Credit	.08	.23	.35
3	GPA	.09	1.41	1.02

Note

^aValues shown are for the whole model as the variables entered the equation.

^bValues shown are for the whole model as the variables entered the equation.

Cohen (1977) has offered the following criteria for defining the effect size (strength of relationship) for the behavioral sciences:

Small effect size: $r^2 = .01$ or $r = .10$

Medium effect size: $r^2 = .09$ or $r = .30$

Large effect size: $r^2 = .25$ or $r = .50$ (pp. 70-80)

Overall Graduates' Job Satisfactoriness

The following explains the partial correlation for the overall job satisfactoriness of graduates without gender differentiation (see Table 9).

Grade point average (GPA) had a partial correlation coefficient of .08 with overall job satisfactoriness. While this shows a direct positive relationship, it indicates a very negligible effect size.

Educational level of head of household (Head-Ed) had a partial correlation of $-.09$ with graduates' overall job satisfactoriness since it shows an inverse relationship, meaning that graduates from low socioeconomic status (SES) tend to have high job satisfactoriness. However, the effect size r strength of relationship is negligible.

The Virginia Competency Test (VCT-Read), SRA-App, VTE-Credit, SRA-Math, and SRA-Lang had partial correlation of .05, .06, .08, .09, and .008 with graduates' overall job satisfactoriness. The effect strength of these variables is negligible.

Table 9

Partial correlation coefficients between overall job satisfactoriness and each independent variable while others are controlled

(N = 105)

Dependent	Variable		Coefficient	Controlling for
	Independent			
Job satisfactoriness (BossSAT)	GPA		.0755	VCT-Read, SRA-Math, VTE-Credit, SRA-Lang, SRA-App, Head-Ed, Sex
Job satisfactoriness (BossSAT)	Head-Ed		-.0897	GPA, VCT-Read, SRA-Math, SRA-Lang, SRA-App, VTE-Credit, Sex
Job satisfactoriness (BossSAT)	VCT-Read		.0495	GPA, SRA-Math, SRA-Lang, SRA-App, Head-Ed, VTE-Credit, Sex
Job satisfactoriness (BossSAT)	SRA-App		.0606	GPA, VCT-Read, SRA-Math, SRA-Lang, Head-Ed, VTE-Credit, Sex
Job satisfactoriness (BossSAT)	VTE-Credit		.0812	GPA, VCT-Read, SRA-Math, SRA-Lang, SRA-App, Head-Ed, Sex
Job satisfactoriness (BossSAT)	SRA-Math		.0913	GPA, VCT-Read, SRA-Lang, SRA-App, VTE-Credit, Head-Ed, Sex
Job satisfactoriness (BossSAT)	SRA-Lang		.0079	GPA, VCT-Read, SRA-App, SRA-Math, VTE-Credit, Head-Ed, Sex

Overall Graduates' Income

Grade point average (GPA) had a partial correlation of $-.14$ with the overall income earned by graduates per hour. This was an inverse relationship, meaning that graduates who had high GPA earned lower income than those with low GPA (see Table 10). It showed a small effect size.

Science Research Associate (SRA-Math) showed a partial correlation of $.12$ with a direct positive relationship. Cohen shows this as a small effect size relationship.

The number of credit hours of vocational education (VTE-Credit) had a partial correlation of $.03$ with graduates' overall income. It had a direct positive relationship. However, its effect size was negligible.

Socioeconomic status (Head-Ed), and SRA-App had an inverse partial correlation of $-.13$ and $-.04$, respectively. It meant that graduates who had low socioeconomic status and low SRA-Applied Science earned high income than those with high socioeconomic status and high SRA-Applied Science. Socioeconomic status had a small effect size and SRA-Applied Science effect size was negligible.

Virginia Competency Test scores in reading (VCT-Read) and SRA-Language had a partial correlation of $.003$ and $.05$ with overall graduates' income. While it is a direct positive relationship, this is a very negligible effect size.

Table 10

Partial correlation coefficients between overall income earned per hour and each independent variable while controlling others
(N = 105)

Variable		Coefficient	Controlling for
Dependent	Independent		
Income	GPA	-.1411	VCT-Read, SRA-Math, SRA-Lang, SRA-App, Head-Ed, VTE-Credit, Sex
Income	SRA-Math	.1192	GPA, VCT-Read, SRA-Lang, SRA-App, Head-Ed, VTE-Credit, Sex
Income	VTE-Credit	.0263	GPA, VCT-Read, SRA-Lang, SRA-App, Head-Ed, SRA-Math, Sex
Income	Head Ed	-.1282	GPA, VCT-Read, SRA-Lang, SRA-App, Head-Ed, VTE-Credit, Sex
Income	VCT-Read	.0025	GPA, SRA-App, Head-Ed, VTE-Credit, Sex, SRA-Lang, SRA-Math
Income	SRA-Lang	.0499	GPA, SRA-App, Head-Ed, VTE-Credit, SRA-Math, VCT-Read, Sex
Income	SRA-App	-.0365	GPA, SRA-Math, Head-Ed, VTE-Credit, SRA-Lang, VCT-Read, Sex

Overall Graduates' Job Satisfaction

Grade point average (GPA) had an inverse correlation of $-.001$ with overall graduates' job satisfaction. This means that graduates with high GPA tended to be less satisfied with their job (see Table 11). Cohen (1977) would refer to this relationship as one with a negligible effect size.

SRA-English language had a direct positive correlation of $.19$ with overall graduates' job satisfaction. According to Cohen's criteria this is a small effect size relationship.

Socioeconomic status (Head-Ed) had an inverse correlation of $-.09$ with the overall job satisfaction of graduates. It means that graduates from low socioeconomic status tend to be more satisfied with their job. This is a negligible effect size.

The credit hours of vocational technical education (VTE-Credit) has a direct positive correlation of $.07$ with graduates' overall job satisfaction. It has a negligible effect size.

VCT-Read and SRA-Applied Science both have an inverse correlation of $-.03$ and $-.06$ with the overall graduates' job satisfaction. It means that graduates with low scores on the VCT-Read and SRA-Applied Science tend to be more satisfied with their job. The effect sizes of the variables are very negligible.

Table 11

Partial correlation coefficients between overall job satisfaction and each independent variable while others are controlled

(N = 105)

Dependent	Variable		Controlling for
	Independent	Coefficient	
Job satisfaction	GPA	-.0010	SRA-Lang, VCT-Read, SRA-Math, SRA-App, Head-Ed, VTE-Credit, Sex
Job satisfaction	SRA-Lang	.1934	GPA, VCT-Read, SRA-Math, SRA-App, Head-Ed, VTE-Credit, Sex
Job satisfaction	Head-Ed	-.0864	GPA, VCT-Read, SRA-Math, SRA-App, VTE-Credit, SRA-Lang, Sex
Job satisfaction	VTE-Credit	.0729	GPA, VCT-Read, SRA-Math, SRA-Lang, Sex, SRA-App, Head-Ed
Job satisfaction	VCT-Read	-.0328	GPA, SRA-Math, SRA-App, SRA-Lang, VTE-Credit, Head-Ed, Sex
Job satisfaction	SRA-Math	.0393	GPA, VCT-Read, SRA-App, SRA-Lang, VTE-Credit, Head-Ed, Sex, VCT-Math
Job satisfaction	SRA-App	-.0613	GPA, VCT-Read, SRA-Lang, VTE-Credit, Head-Ed, VCT-Math, Sex, SRA-Math

SRA-Math, however, shows a direct positive correlation of .04 with overall job satisfaction of graduates. Its effect size is very negligible.

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATION

This chapter reports the summary and discussion of research findings emanating from this study. The purpose of the study was to investigate the relationship between selected student characteristics, participation in vocational education, and the labor market achievement of high school graduates of a specific high school.

This study is important for three reasons: it provides useful information that can be used to evaluate the relationship between students' characteristics, participation in vocational education, and the labor market achievement attained by graduates; it provides useful information with which to evaluate the contribution of vocational education to the labor market achievement; and it provides a base of knowledge and feedback to educational planners, vocational teachers, and interested educators.

The format of this chapter includes the following sections: (a) Summary, (b) Conclusions, (c) Discussion, and (d) Recommendations.

Summary

The following is the summary of the findings of the study:

Prediction of Male Graduates' Job Satisfactoriness

Of all the variables entered into the regression model, socioeconomic status and aptitude test, were inversely related with job satisfactoriness. This means that male graduates having high academic achievement, academic aptitude, and low socioeconomic status tended to be more satisfactory to their employer (possess better job satisfactoriness) than those having low academic achievement, low aptitude, and high socioeconomic status.

Prediction of Female Graduates' Job Satisfactoriness

Out of all the variables entered into the regression model, the degree of participation in vocational education (VTE-Credit) accounted for 12.0% of the explained variance in the job satisfactoriness of female graduates. This means that female graduates having more credits in vocational education, and possessing high academic aptitude tended to be more satisfactory to their employer (possesses better job satisfactoriness) than those that took fewer credits in VTE and had low academic aptitude.

Prediction of Male Graduates' Income

Of all the variables in the regression model academic achievement (GPA) accounts for 3.0% of the variance in predicting the income earned per hour by male graduates. It has an inverse relationship with income. This means that male

graduates who have high academic achievement tended to earn a low income per hour.

Prediction of Female Graduates' Income

Of all the variables in the regression model only socioeconomic status (Head-Ed) and the degree of male graduates' participation in vocational education (VTE-Credit) account for 3.0% of the variance. Socioeconomic status of female graduates is inversely related to income. This means that female graduates from low socioeconomic status who took more vocational education courses tended to earn more than those from high socioeconomic status that took fewer vocational education courses.

Prediction of Male Graduates' Job Satisfaction

Out of all the variables entered into the regression model only socioeconomic status (Head-Ed) and the degree of male graduates' participation in vocational education (VTE-Credit) account for 8.0% of the variance in predicting male graduates' income earned per hour. However, both are inversely related to male graduates' income. This means that male graduates from low socioeconomic status tend to be more satisfied with their job than those from high socioeconomic status, while males who took more vocational education courses tended to be less satisfied with their job than those who took fewer courses in vocational education.

Prediction of Female Graduates' Job Satisfaction

Of all the variables entered into the regression model only academic aptitude (SRA-Lang), degree of participation in vocational education (VTE-Credit), and academic achievement accounted for 9.0% of the variance in the job satisfactoriness of female graduates. The variables have a direct positive relationship to female graduates' income. This means that female graduates who had high academic aptitude, academic achievement, and more courses in vocational education tended to be more satisfied with their jobs than were those who had low academic aptitude, low academic achievement, and fewer courses in vocational education.

Findings about the Strength of Relationship Test

A partial correlation technique was used to generate the strength of relationship between each independent and a particular overall dependent variable while the effect of other independent variables were controlled. Cohen (1977) criteria were used to determine the effect size (strength of relationship) of the correlation between each independent and dependent variable.

Overall Graduates' Job Satisfactoriness:

All the variables have direct positive correlation with overall graduates' job satisfactoriness except socioeconomic

status which has an inverse correlation (see Table 9). This means that individual graduates who had high academic achievement, academic aptitude, and more courses in vocational education tended to be more satisfactory (have more job satisfactoriness) to their employer than those who had low academic achievement, aptitude, and fewer courses in vocational education. Those individuals from low socioeconomic status having these academic characteristics are also more satisfactory to their employer than those from high socioeconomic status. Effect size of the relationship between the variables is very weak.

Overall Graduates' Income

Academic achievement (GPA), academic aptitude and socioeconomic status (Head-Ed) has an inverse correlation with the overall income earned per hour by graduates (see Table 10). This means that graduates who had high academic achievement, academic aptitude in applied science earned lower income per hour while those from low socioeconomic status earned higher income. This has a strength of small effect. The degree of participation in vocational technical education (VTE-Credit) and academic aptitude in math, reading, and language has a direct positive correlation with graduates' overall income. This means that graduates who took more courses in vocational education tended to earn high income, while those who took fewer courses in VTE earned

lower income per hour. This, however, is a very weak effect size.

Overall Graduates' Job Satisfaction

Academic achievement (GPA, VCT-Read), and academic aptitude (SRA-App) has an inverse correlation with graduates' overall job satisfaction (see Table 11). This means that graduates who had high academic achievement (GPA, VCT-Read) and academic aptitude (SRA-App) tended to be less satisfied with their job. Cohen's (1977) criteria referred to this as a very weak relationship. However, academic aptitude (SRA-English language) and the degree of participation in VTE has a direct positive correlation with overall job satisfaction of graduates. It means that graduates who had high aptitude in English language and who had taken more courses in VTE tended to be more satisfied with their jobs. Academic aptitude has a small effect size relationship with job satisfaction while the effect size of VTE is a weak one.

Conclusions

The following major conclusions could be reached from the findings of this study:

1. The strength of relationship test indicated that the relationships between high school students' character-

istics and their labor market achievements are of limited practical importance.

2. From the findings of previous research and the findings of this study, one could conclusively speculate that all the variables that had been used in this and previous studies have contributed as much as possible to the explained variance in high school graduates' labor market achievement. It may be difficult, if not almost impossible, to find a single variable or a set of variables that would explain a large variance in the labor market achievement of graduates. Therefore, the success of graduates in the labor market may be attributed to many variables that are beyond researchers' speculation, but which contribute their little quota to the overall success of graduates in the labor market.

Discussion

Academic achievement and academic aptitude were found to be poor predictors of labor market achievement. Their coefficients of determination were almost negligible. The study did not support the widespread assumption and findings that high academic achievement and aptitude leads to high income (Bridgman, 1930; Sewell & Hauser, 1975; Walters & Bray, 1963). The findings, however, were found to be consistent with the findings of previous re-

search on the labor market achievement of graduates (Cox, 1981; Hoyt, 1965; Muchinsky & Hoyt, 1976; Nelson, 1975; O'Leary, 1980). These authors stated that academic achievement and academic aptitude are poor predictors of occupational success. It could be assumed that they are poor predictors of labor market achievement because they did not measure job related achievement of graduates (lacks job content validity). In other words, for academic achievement and academic aptitude to yield better results in predicting the labor market achievement of graduates they should be measuring achievement related to specific jobs.

High school graduates in this study who had low academic aptitude tended to have high job satisfactoriness (labor market achievement) partly because graduates' low academic aptitude measure was not job related or job specific; therefore, they tended not to be affected by their low academic aptitude. Graduates who had low academic aptitude could also have had high job satisfactoriness because they knew that in order to keep their jobs they needed to perform exceptionally well on the job irrespective of their low academic aptitude. Consequently, they were able to perform their jobs to the satisfaction of their employers.

Socioeconomic status was found to be a poor predictor of the labor market achievement of graduates. This

finding was consistent with previous research such as Kennan's (1980) study which concluded that socioeconomic status was not related to the labor market achievement of graduates. Socioeconomic status was a poor predictor of labor market achievement of graduates in this study because it was not properly defined. Cole (1979) defined socioeconomic status as the measure of an individual's years of education, prestige of occupation and one's income. This study, however, used only the years of education of the head of household in which student lived as a measure of socioeconomic status. This was not a good measure of socioeconomic status in this study because of what sociologists called status inconsistency whereby an individual by virtue of his years of education and the prestige of the occupation could be classified as belonging to low SES, but who by virtue of the income earned could be in the middle or high SES. In other words, for socioeconomic status to be useful in predicting the job success of graduates the three measures would seem appropriate.

Male graduates from low SES were found to possess high job satisfactoriness (labor market achievement). Male graduates from low SES could be assumed to have some moral values about working to the best of their ability in order to keep their jobs. This might be lacking in a male graduate from high SES. Low SES individuals under-

stand that their jobs are a means of subsistence especially because of the high unemployment in the area during the course of the study. Therefore, they tended to do their best so as to keep the source of their livelihood. Consequently, they experienced high job satisfactoriness.

The degree of participation in vocational education was the best predictor of female graduates' job satisfactoriness. Female graduates who took more courses in VTE tended to experience higher job satisfactoriness. The finding was supported by previous research (Howell & Felstehausen, 1971; Smiley, 1976). It could be assumed that female graduate who took more courses in VTE experience higher labor market achievement (job satisfactoriness) because the more credit hours they accumulate in vocational education the more they tended to increase their employability skills than those who took a limited number of courses. This was found to be more true for females than males in this study because females were confined to secretarial and home economics areas and were working in areas related to their vocation whereas male graduates were apparently working in areas not related to their vocational training. The degree of participation in VTE was also a predictor of the income earned per hour by female graduates. It means that females who took more courses in vocational education tended to earn

higher income while those with low degree of participation tended to earn lower income than those who took fewer courses. Its coefficient of determination, however, was almost zero. This conclusion was consistent with previous research, which speculated that little or no effect on wages was found from participation in vocational education (Conroy, 1980; Grasso, 1975; Mertens & Copa, 1981; Welo & Copa, 1982; Wiley & Harnischfege, 1980). The reason for its low predictive value in this study could be attributed to the high unemployment of 12.5% reported for the locality where students lived and worked when this study was conducted (Labor Force and Unemployment Insurance Status Report, Virginia Employment Commission). The high unemployment probably did not allow graduates to get high pay for their saleable skill or allowed them to take jobs unrelated to their areas that paid minimum wage for workers with no previous work experience.

Recommendations

Information from the findings of this study, and of other studies appears to emphasize that much additional research remains to be accomplished on finding the variables that contribute most to the labor market success of graduates. Keeping in mind the predictors of labor

market achievement and the relationships observed in this study, the following recommendations are made to encourage more research in this area:

- a. Research literature stated that there are few if any labor market advantages enjoyed by high school graduates of the different curricula one year after graduation from high school. In view of this, the findings of this study are not surprising. It is recommended that this study be replicated at some point to find out if the longevity of graduates has had any notable, significant effect on labor market achievement of graduates.
- b. In light of the low predictive value and the relationship of the variables used in the study, it is recommended that future studies investigate labor market achievement with other in-school variables rather than academic achievement and aptitude.
- c. Socioeconomic status is said to be measured by an individual's years of education, prestige of occupation, and income (Cole, 1977, p. 335). The constraints beyond the control of the investigation limited the researcher to the use of individuals' education to represent socioeconomic status. This was not a good predictor of SES in this study. Therefore, it is recommended that education, prestige

Therefore, it is recommended that education, prestige of occupation, and income be used in subsequent research studies.

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APPENDIX A

CODING SHEET FOR _____ DATA
198__GRADUATES

Student's name _____
 | box 1-4 | ID=ID | ____ | ____ | ____ | ____ | (CODE ON ALL 6 SHEETS)
 | 1 | SHEET NUMBER-----SKIP WHILE CODING AT THE SCHOOL
 (1) Grades for classes (part 1)
 (2) Years for classes (part 1)
 (3) Grades for classes (part 2)
 (4) Years for classes (part 2)
 (5) Standardized test scores
 (6) Activities and Sports
 | 2 | SEX ____ (0) Male ____ (1) Female
 | 3-5 | RANK=RANK IN SCHOOL ____ ____ ____ (out of 487)
 | 6 | TYPE=TYPE OF STUDENT ____ (1) Regular ____ (2) EMR ____ (3) LD ____ (4) ED
 | 7-9 | GPA=GRADE POINT AVERAGE ____ . ____ ____

Parent Information -- Code directly (USE LEADING ZEROS)
 | 10-11 | ____ FATHOCC = FATHER'S OCCUPATION
 | 12-13 | ____ MOTHOCC = MOTHER'S OCCUPATION
 | 14 | ____ FATHED = FATHER'S EDUCATION
 | 15 | ____ MOTHED = MOTHER'S EDUCATION

Code: GRADE = (4)A (3)B (2)C (1)D (0)F
 YEAR = (1)80-81 (2)81-82 (3)82-83 (4)83-84 (5)84-85

English	GRADE	YEAR	
16			ENG1 = ADV PLACEMENT ENG
17			ENG2 = ADV READING SKILLS
18			ENG3 = ADV STUDY 9
19			ENG4 = ADV STUDY 10
20			ENG5 = ADV GRAM AND COMP
21			ENG6 = ADVERTISING
22			ENG7 = AMERICAN LIT
23			ENG8 = AMERICAN NOVEL
24			ENG9 = BASIC COMM
25			ENG10 = BASIC GRAM AND COMP
26			ENG11 = BOOKS TO BROADWAY
27			ENG12 = BRITISH NOVEL
28			ENG13 = BUSINESS COMM
29			ENG14 = CHILDREN LIT
30			ENG15 = COMING OF AGE
31			ENG16 = CREATIVE EXPRESS
32			ENG17 = CREATIVE WRITING
33			ENG18 = DEBATE
34			ENG19 = DEVELOPMENT READ
35			ENG20 = ENG LIT 1
36			ENG21 = ENG LIT 2
37			ENG22 = ETHNIC LIT
38			ENG23 = FUND READ SKILLS
39			ENG24 = INTRO LANG ARTS 9
40			ENG25 = INTERM GRAM AND COMP
41			ENG26 = JOURNALISM 1
	42		ENG27 = JOURNALISM 2
	43		ENG28 = JOURNALISM 3
	44		ENG29 = LIT OF THE BIBLE
	45		ENG30 = LIT OF MOD WORLD
	46		ENG31 = MASS MEDIA
	47		ENG32 = MYTHS, LEGENDS
	48		ENG33 = NON-FICTION
	49		ENG34 = NOVELS LOSS INNOC
	50		ENG35 = ON STAGE
	51		ENG36 = PANTOMINE
	52		ENG37 = PLAY PROD 1
	53		ENG38 = PLAY PROD 2
	54		ENG39 = POETRY SURVEY
	55		ENG40 = RADIO PRODUCTION
	56		ENG41 = READING CLASSES
	57		ENG42 = RECYCLE INT LAN ARTS
	58		ENG43 = SCIENCE FICTION
	59		ENG44 = SHAKESPEARS COMD
	60		ENG45 = SHAKESPEARS TRAG
	61		ENG46 = SURVIVAL ENGLISH
	62		ENG47 = SURVEY MLD DRAMA
	63		ENG48 = TALES OF MYSTERY
	64		ENG49 = THE SHORT STORY
	65		ENG50 = TV AND FILM PROD
	66		ENG51 = YEARBOOK 1
	67		ENG51 = YEARBOOK 2

Foreign Language

GRADE	YEAR	
68		
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GRADE	YEAR	
112		
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119		

Trade & Industrial (A)

GRADE	YEAR	
112		
113		
114		
115		
116		
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119		

Agricultural

GRADE	YEAR	
120		
121		
122		
123		
124		
125		
126		
127		
128		

Marketing

GRADE	YEAR	
129		
130		
131		
132		
133		

Nursing

GRADE	YEAR	
134		

Business

GRADE	YEAR	
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Mathematics

GRADE	YEAR	
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Science

GRADE	YEAR	
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Social Science

GRADE	YEAR	
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106		
107		
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109		
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111		

Trade and Industrial (B)

GRADE	YEAR	Sheet number
1	3	TIB1 = AUTO BODY 1
2	3	TIB2 = AUTO BODY 2
3	3	TIB3 = AUTO MECH 1
4	3	TIB4 = AUTO MECH 2
5	3	TIB5 = BUILD MAINT 1
6	3	TIB6 = BUILD MAINT 2
7	3	TIB7 = BUILD TRADES 1
8	3	TIB8 = BUILD TRADES 2
9	3	TIB9 = COSMETOLOGY 1
10	3	TIB10 = COSMETOLOGY 2
11	3	TIB11 = COSMETOLOGY 3
12	3	TIB12 = DRAFTING 1
13	3	TIB13 = DRAFTING 2
14	3	TIB14 = DRAFTING 3
15	3	TIB15 = ELECTRICITY 1
16	3	TIB16 = ELECTRICITY 2
17	3	TIB17 = ELECTRONICS 1
18	3	TIB18 = ELECTRONICS 2
19	3	TIB19 = ELECTRONICS 3
20	3	TIB20 = HEALTH EXP
21	3	TIB21 = BUSINESS EXP
22	3	TIB22 = HEALTH/BUSINESS EXP
23	3	TIB23 = INDUS COOP 1
24	3	TIB24 = INDUS COOP 2
25	3	TIB25 = INDUS MECH 1
26	3	TIB26 = INDUS MECH 2
27	3	TIB27 = PRINTING 1
28	3	TIB28 = PRINTING 2
29	3	TIB29 = SERVICE OCC 1
30	3	TIB30 = SERVICE OCC 2
31	3	TIB31 = WORLD COMM
32	3	TIB32 = WOOD CONST
33	3	TIB33 = WOOD TECH
34	3	TIB34 = WOOD TECH

Physical Education

35	3	PE1 = ADV PE 1
36	3	PE2 = ADV PE 2
37	3	PE3 = HEALTH AND PE 9
38	3	PE4 = HEALTH AND PE 10

Art

39	3	ART1 = ART 1.5
40	3	ART2 = ART 1
41	3	ART3 = ART 2
42	3	ART4 = ART 3
43	3	ART5 = ART 4
44	3	ART6 = ART 5

Music

GRADE	YEAR	MUSIC
45	9	MUSIC1 = BAND 9
46	9	MUSIC2 = BAND 10
47	9	MUSIC3 = BAND 11
48	9	MUSIC4 = BAND 12
49	9	MUSIC5 = CHOIR 9
50	9	MUSIC6 = CHOIR 10
51	9	MUSIC7 = CHOIR 11
52	9	MUSIC8 = CHOIR 12

Home Economics

53	9	HOMEC1 = FAMILY LIVING
54	9	HOMEC2 = HOME EC I
55	9	HOMEC3 = HOME EC II

Driver's Education

56	9	DRIVE1 = DRIV ED C AND W
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Computer Science

57	9	COMPSC1 = COMPUTER SCI
58	9	COMPSC2 = COMPUTER SCI TA

Education for Employment

59	9	EFE1 = ED FOR EMP 9
60	9	EFE2 = ED FOR EMP 10
61	9	EFE3 = ED FOR EMP 11
62	9	EFE4 = ED FOR EMP 12

Work Experience--Coop

63	9	WECEP1 = WK EXP COOP 9
64	9	WECEP2 = WK EXP COOP 10
65	9	WECEP3 = WK EXP COOP 11
66	9	WECEP4 = WK EXP COOP 12

Special Education

67	9	SPED1 = ENGLISH 9
68	9	SPED2 = ENGLISH 10
69	9	SPED3 = ENGLISH 11
70	9	SPED4 = ENGLISH 12
71	9	SPED5 = MATH 10
72	9	SPED6 = MATH 11
73	9	SPED7 = MATH 12
74	9	SPED8 = SCIENCE 1
75	9	SPED9 = SOC STD 1
76	9	SPED10 = SOC STD 2
77	9	SPED11 = SOC STD 3

Courses Not Listed
GRADE YEAR COURSE

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Test Scores -- Code directly (USE LEADING ZEROS)

1 5 Sheet number
 2-3 MET = METROPOLITAN READINESS TEST (Raw Score)

4-6 SRA4COMP = SRA COMPOSITE--4th GRADE (GSV)
 7-9 SRA4READ = SRA READING--4th GRADE (GSV)
 10-12 SRA4LANG = SRA LANGUAGE--4th GRADE (GSV)
 13-15 SRA4MATH = SRA MATH--4th GRADE (GSV)
 16-18 SRA4SOC = SRA SOCIAL STUDIES--4th GRADE (GSV)
 19-21 SRA4SCI = SRA SCIENCE--4th GRADE (GSV)
 22-24 SRA4SORC = SRA SOURCES--4th GRADE (GSV)
 25 SRA4STEA = SRA STANINE--4th GRADE

26-28 SRA8COMP = SRA COMPOSITE--8th GRADE (GSV)
 29-31 SRA8READ = SRA READING--8th GRADE (GSV)
 32-34 SRA8LANG = SRA LANGUAGE--8th GRADE (GSV)
 35-37 SRA8MATH = SRA MATH--8th GRADE (GSV)
 38-40 SRA8SOC = SRA SOCIAL STUDIES--8th GRADE (GSV)
 41-43 SRA8SCI = SRA SCIENCE--8th GRADE (GSV)
 44-46 SRA8SORC = SRA SOURCES--8th GRADE (GSV)
 47 SRA8STEA = SRA STANINE--8th GRADE

48-49 DAT9VERB = DAT VERBAL--9TH GRADE (Raw Score)
 50-51 DAT9NUM = DAT NUMERICAL--9TH GRADE (Raw Score)
 52-53 DAT9VRNA = DAT V.R. & N.A.--9TH GRADE (Raw Score)
 54-55 DAT9ABST = DAT ABSTRACT REASONING--9TH GRADE (Raw Score)
 56-57 DAT9CLER = DAT CLERICAL--9TH GRADE (Raw Score)
 58-59 DAT9MECH = DAT MECHANICAL--9TH GRADE (Raw Score)
 60-61 DAT9SPCE = DAT SPACIAL RELATIONS--9TH GRADE (Raw Score)
 62-63 DAT9SPEL = DAT SPELLING--9TH GRADE (Raw Score)
 64-65 DAT9LANG = DAT LANGUAGE--9TH GRADE (Raw Score)

66-68 SRA1READ = SRA READING--11th GRADE (GSV)
 69-71 SRA1MATH = SRA MATH--11th GRADE (GSV)
 72-74 SRA1LANG = SRA LANGUAGE--11th GRADE (GSV)
 75-77 SRA1COMP = SRA READ, MATH, LANG COMPOSITE--11th GRADE (GSV)
 78-80 SRA1REF = SRA REFERENCES--11th GRADE (GSV)
 81-83 SRA1SOC = SRA SOCIAL STUDIES--11th GRADE (GSV)
 84-86 SRA1SCI = SRA SCIENCE--11th GRADE (GSV)
 87-89 SRA1APP = SRA APPLIED--11th GRADE (GSV)
 90-92 SRA1TOT = SRA TOTAL EAS--11th GRADE (GSV)

93-94 PSAT1 = PSAT VERBAL (Raw Score)
 95-96 PSAT2 = PSAT MATH (Raw Score)
 97-99 PSATI = PSAT INDEX (Raw Score)

100-101 SATVERB = SAT VERBAL
 102-103 SATMATH = SAT MATH
 104-105 SATREAD = SAT READING
 106-107 SATVOC = SAT VOCABULARY
 108-109 TSME

Virginia Competency Test--- Code x directly except 100 = 99.9

110-112 VCTREAD = VIRGINIA COMPETENCY TEST--READING
 113-115 VCTMATH = VIRGINIA COMPETENCY TEST--MATHEMATICS

Activities Code (1) if participated

1	6	
2	Sheet Number	
3	ACT1 = ART CLUB 9	
4	ACT2 = ART CLUB 10	
5	ACT3 = ART CLUB 11	
6	ACT4 = ART CLUB 12	
7	ACT5 = AIASA 9	
8	ACT6 = AIASA 10	
9	ACT7 = AIASA 11	
10	ACT8 = AIASA 12	
11	ACT9 = DECA 9	
12	ACT10 = DECA 10	
13	ACT11 = DECA 11	
14	ACT12 = DECA 12	
15	ACT13 = DRAMA CLUB 9	
16	ACT14 = DRAMA CLUB 10	
17	ACT15 = DRAMA CLUB 11	
18	ACT16 = DRAMA CLUB 12	
19	ACT17 = FBLA 9	
20	ACT18 = FBLA 10	
21	ACT19 = FBLA 11	
22	ACT20 = FBLA 12	
23	ACT25 = FFA 9	
24	ACT26 = FFA 10	
25	ACT27 = FFA 11	
26	ACT28 = FFA 12	
27	ACT33 = FORENSICS 9	
28	ACT34 = FORENSICS 10	
29	ACT35 = FORENSICS 11	
30	ACT36 = FORENSICS 12	
31	ACT37 = HERO FHA 9	
32	ACT38 = HERO FHA 10	
33	ACT39 = HERO FHA 11	
34	ACT40 = HERO FHA 12	
35	ACT41 = HOSA 9	
36	ACT42 = HOSA 10	
37	ACT43 = HOSA 11	
	ACT44 = HOSA 12	

38		
39	ACT45 = KEY CLUB 9	
40	ACT46 = KEY CLUB 10	
41	ACT47 = KEY CLUB 11	
42	ACT48 = KEY CLUB 12	
43	ACT49 = LIT MAG 9	
44	ACT50 = LIT MAG 10	
45	ACT51 = LIT MAG 11	
46	ACT52 = LIT MAG 12	
47	ACT53 = NAT HON SOC 9	
48	ACT54 = NAT HON SOC 10	
49	ACT55 = NAT HON SOC 11	
50	ACT56 = NAT HON SOC 12	
51	ACT57 = NEWSPAPER 9	
52	ACT58 = NEWSPAPER 10	
53	ACT59 = NEWSPAPER 11	
54	ACT60 = NEWSPAPER 12	
55	ACT61 = PEP CLUB 9	
56	ACT62 = PEP CLUB 10	
57	ACT63 = PEP CLUB 11	
58	ACT64 = PEP CLUB 12	
59	ACT65 = SCA 9	
60	ACT66 = SCA 10	
61	ACT67 = SCA 11	
62	ACT68 = SCA 12	
63	ACT69 = SCIENCE CLUB 9	
64	ACT70 = SCIENCE CLUB 10	
65	ACT71 = SCIENCE CLUB 11	
66	ACT72 = SCIENCE CLUB 12	
67	ACT73 = VICA 9	
68	ACT74 = VICA 10	
69	ACT75 = VICA 11	
70	ACT76 = VICA 12	
71	ACT77 = YEARBOOK 9	
72	ACT78 = YEARBOOK 10	
73	ACT79 = YEARBOOK 11	
	ACT80 = YEARBOOK 12	

SPORT41 = VOLLEYBALL 9
 SPORT42 = VOLLEYBALL 10
 SPORT43 = VOLLEYBALL 11
 SPORT44 = VOLLEYBALL 12

ACT21 = FCA 9
 ACT22 = FCA 10
 ACT23 = FCA 11
 ACT24 = FCA 12

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Sports Programs Code (1) if participated

74	SPORT1 = BASEBALL 9
75	SPORT2 = BASEBALL 10
76	SPORT3 = BASEBALL 11
77	SPORT4 = BASEBALL 12
78	SPORT5 = BASKETBALL 9
79	SPORT6 = BASKETBALL 10
80	SPORT7 = BASKETBALL 11
81	SPORT8 = BASKETBALL 12
82	SPORT9 = FOOTBALL 9
83	SPORT10 = FOOTBALL 10
84	SPORT11 = FOOTBALL 11
85	SPORT12 = FOOTBALL 12
86	SPORT13 = GOLF 9
87	SPORT14 = GOLF 10
88	SPORT15 = GOLF 11
89	SPORT16 = GOLF 12
90	SPORT17 = TENNIS 9
91	SPORT18 = TENNIS 10
92	SPORT19 = TENNIS 11
93	SPORT20 = TENNIS 12
94	SPORT21 = TRACK 9
95	SPORT22 = TRACK 10
96	SPORT23 = TRACK 11
97	SPORT24 = TRACK 12
98	SPORT25 = WRESTLING 9
99	SPORT26 = WRESTLING 10
100	SPORT27 = WRESTLING 11
101	SPORT28 = WRESTLING 12
102	SPORT29 = MANAGER 9
103	SPORT30 = MANAGER 10
104	SPORT31 = MANAGER 11
105	SPORT32 = MANAGER 12

106	ACT85 = CHEERLEADING 9
107	ACT86 = CHEERLEADING 10
108	ACT87 = CHEERLEADING 11
109	ACT88 = CHEERLEADING 12

110	SPORT37 = GYMNASTICS 9
111	SPORT38 = GYMNASTICS 10
112	SPORT39 = GYMNASTICS 11
113	SPORT40 = GYMNASTICS 12

114	ACT81 = CHESS CLUB 9
115	ACT82 = CHESS CLUB 10
116	ACT83 = CHESS CLUB 11
117	ACT84 = CHESS CLUB 12

APPENDIX B

FOLLOW-UP QUESTIONNAIRE

_____ HIGH SCHOOL

Name (PLEASE PRINT): _____
(Last) (First) (Middle)

Current Mailing Address: _____
(PLEASE PRINT) (Street)

_____ (City)

_____ (State) (ZIP)

Social Security Number: _____ - _____ - _____

PART I

*1. Sex (CHECK ONE): _____ (1) Male
_____ (2) Female

2. Race (CHECK ONE): _____ (1) Am. Indian
_____ (2) Asian
_____ (3) Black
_____ (4) Hispanic
_____ (5) White

3. Year of Birth: _____

4. During your last two years in high school, which of the following best describes the high school program you were enrolled in?
(CHECK ONE)

_____ (1) General
_____ (2) Academic or College Preparatory
_____ (3) Vocational
_____ (4) Combination of Vocational and Academic/General

Note: * - Questions used in this study

5. If you were enrolled in a vocational or combination program in your last two years of high school, please indicate your vocational area of study. (CHECK ONE)

- (1) Agriculture
- (2) Business
- (3) Distributive Education
- (4) Health Occupations
- (5) Home Economics
- (6) Industrial Arts
- (7) Trade and Industrial Education

6. How much do you agree with each of the following statements about why you enrolled in your high school program (i.e., General, Academic, Vocational, or Combination)? (CIRCLE ONE NUMBER FOR EACH STATEMENT)

	Disagree Strongly	Disagree	Agree	Agree Strongly	Does not Apply
a. I chose the program because of my sex	1	2	3	4	5
b. I chose the program because of my race	1	2	3	4	5
c. I was talked into choosing the program by my parents	1	2	3	4	5
d. I chose the program because it was my first choice	1	2	3	4	5
e. I chose the program because I thought I would get good grades	1	2	3	4	5
f. I chose the program because I thought I would enjoy it	1	2	3	4	5
g. I chose the program because I liked an earlier course in this area	1	2	3	4	5
h. I chose the program because I thought I would get a good job	1	2	3	4	5
i. I chose the program because I thought it would help me get into college	1	2	3	4	5
j. I chose the program because I thought it would be the easiest	1	2	3	4	5

7. How much did each of the following people influence your choice of high school program? (CIRCLE ONE NUMBER FOR EACH STATEMENT)

	Not at all	Some- what	A great deal
a. Your parents/guardians	1	2	3
b. Relative(s) other than parents	1	2	3
c. Teacher(s)	1	2	3
d. Guidance counselor(s)	1	2	3
e. The principal or assistant principal	1	2	3
f. Clergy (minister, priest, rabbi, etc.)	1	2	3

	Not at all	Some- what	A great deal
g. State employment service officer . .	1	2	3
h. Friends	1	2	3
i. Yourself	1	2	3

8. How would you rate your high school education in each of the following areas? (CIRCLE ONE NUMBER ON EACH LINE)

	Poor	Fair	Good	Exc.	Does Not Apply
a. Agriculture	1	2	3	4	5
b. Business	1	2	3	4	5
c. Computer Science	1	2	3	4	5
d. Distributive Education	1	2	3	4	5
e. English	1	2	3	4	5
f. Foreign Language	1	2	3	4	5
g. Health Occupations	1	2	3	4	5
h. Home Economics	1	2	3	4	5
i. Humanities (music, art, drama, etc.)	1	2	3	4	5
j. Industrial Arts	1	2	3	4	5
k. Math	1	2	3	4	5
l. Science (biology, each science, etc.)	1	2	3	4	5
m. Social Studies (government, history, etc.)	1	2	3	4	5
n. Trade and Industrial Education .	1	2	3	4	5

9. For each statement below, please indicate whether or not it applies to what you were doing in MARCH 1985. (CIRCLE ONE NUMBER FOR EACH STATEMENT)

	Yes	No
a. I was working for pay at a full-time job	1	2
b. I was working for pay at a part-time job	1	2
c. I was taking academic or non-vocational courses at a two- or four-year postsecondary institution .	1	2
d. I was taking vocational or technical courses at a postsecondary institution	1	2
e. I was on active duty in the armed forces	1	2
f. I was a full-time homemaker	1	2
g. I was temporarily laid off from work	1	2
h. I was looking for work or waiting to report to work	1	2
i. I was unable to work for medical reasons	1	2
j. I was farming full-time	1	2
k. I was involved in on-the-job training	1	2
l. I was working as an apprentice	1	2

IF YOU WERE EMPLOYED IN MARCH 1985, PLEASE GO TO PART II (QUESTIONS 10-18 BELOW).

IF YOU WERE NOT EMPLOYED IN MARCH 1985, PLEASE GO TO PART III (QUESTIONS 19-23, PAGES 6 AND 7).

PART II

*10. We ask you to think back again to what you were doing in MARCH 1985. Please give the following information about the job you held at that time:

YOUR JOB TITLE: _____

NAME OF COMPANY OR FIRM: _____

NAME OF SUPERVISOR: _____

FIRM OR COMPANY
MAILING ADDRESS: _____

(City)

(State)

(ZIP)

*11. How did you feel about the job you had in MARCH 1985? (CHECK ONE)

- _____ (1) I liked it very much.
- _____ (2) I liked it somewhat.
- _____ (3) I disliked it somewhat.
- _____ (4) I disliked it very much.

*12. Considering the characteristics of the job you had in MARCH 1985, please rate the degree to which you were satisfied with the following aspects of that job. (CIRCLE ONE NUMBER FOR EACH ITEM)

		Very Dis- satisfied	Dis- satisfied	Satisfied	Very Satisfied
a. Salary	1	2	3	4	
b. Fringe benefits	1	2	3	4	
c. Training for advancement	1	2	3	4	
d. Chance for advancement	1	2	3	4	
e. Supervision and management	1	2	3	4	
f. Pace (speed) of work	1	2	3	4	
g. Facilities and equipment	1	2	3	4	
h. Relationship with co-workers	1	2	3	4	
i. Variety of work tasks	1	2	3	4	
j. Job security	1	2	3	4	
k. Safety conditions	1	2	3	4	

*13. For the job you had in MARCH 1985, please indicate the basis on which your salary was figured and the salary you made based on this time period. (COMPLETE ONLY ONE RESPONSE CATEGORY)

- _____ (1) I was paid by the hour.
I made \$ _____ an hour.
- _____ (2) I was paid by the week.
I made \$ _____ a week.
- _____ (3) I was paid by the month.
I made \$ _____ a month.

*14. For the job you had in MARCH 1985, approximately how many hours per week did you work? (PLEASE WRITE IN RESPONSE) _____

15. Please respond to each of the following statements in terms of the job you had in MARCH 1985. (CIRCLE ON NUMBER FOR EACH STATEMENT)

	Disagree Strongly	Disagree	Agree	Agree Strongly	Does Not Apply
a. The courses I took in my academic/ general program provided the skills I needed for my job	1	2	3	4	5
b. The courses I took in my vocational program provided the skills I needed for my job	1	2	3	4	5
c. The part-time job I had during high school provided the skills I needed for my job	1	2	3	4	5
d. My high school extra-curricular activities helped me with my job . .	1	2	3	4	5
e. My high school teachers helped me obtain my job	1	2	3	4	5
f. My high school counselor helped me obtain my job	1	2	3	4	5

16. Was the job you had in MARCH 1985 related to the training you received in high school? (CHECK ONE)

- _____ (1) Yes
- _____ (2) No
- _____ (3) I did not receive job training in high school.

17. If the job you had in MARCH 1985 was not related to the training you received in high school, please indicate the reason why below. (CHECK ONE)

- (1) Could not find a job in related field.
- (2) Could not earn enough money in related field.
- (3) Did not like type of job for which I was trained.
- (4) Needed more training to qualify for job.
- (5) Training for this job was not available in my high school.
- (6) No chance for promotion.
- (7) Did not feel I could handle jobs available in my field.
- (8) Other (PLEASE PRINT) _____

18. As of MARCH 1986, what do you plan to be doing? (CHECK ONE)

- (1) I plan to continue working in the same job I had in March 1985.
- (2) I plan to move up in the job I had in March 1985.
- (3) I plan to be working somewhere else.

PART III

IF YOU WERE ENROLLED IN SOME TYPE OF SCHOOL, COLLEGE, OR UNIVERSITY IN MARCH 1985, PLEASE ANSWER QUESTIONS 19-23.

IF YOU WERE NOT ENROLLED IN SOME TYPE OF SCHOOL, COLLEGE, OR UNIVERSITY IN MARCH 1985, SKIP QUESTIONS 19-22 AND ANSWER ONLY QUESTION 23 BELOW.

19. What school, college, or university were you attending in October, 1985?

NAME OF INSTITUTION: _____

ADDRESS OF INSTITUTION: _____
(City) (State)

20. What did you plan to major or specialize in at that time? (PLEASE WRITE RESPONSE BELOW)

21. Please respond to each of the following statements in terms of the institution you attended in MARCH 1985. (CIRCLE ONE NUMBER FOR EACH STATEMENT)

	<i>Disagree Strongly</i>		<i>Disagree</i>		<i>Agree</i>		<i>Agree Strongly</i>		<i>Does Not Apply</i>
a. The courses I took in my academic/ general program provided the skills I needed for my post-high school program	1		2		3		4		5
b. The courses I took in my voca- tional program provided the skills I needed for my post-high school program	1		2		3		4		5
c. My high school teachers helped me enter this institution	1		2		3		4		5
d. My high school counselor helped me enter this institution	1		2		3		4		5

22. Which of the following best describes how well you did in all the courses you took at the institution you attended in MARCH 1985? (CHECK ONE)

- (1) Mostly A's
- (2) About half A's and half B's
- (3) Mostly B's
- (4) About half B's and half C's
- (5) Mostly C's
- (6) About half C's and half D's
- (7) Mostly D's
- (8) Mostly below D

23. As of October 1985, what do you plan to be doing? (CHECK ONE)

- (1) I plan to continue doing what I was doing in October 1984.
- (2) I plan to be out of school in October 1985.
- (3) I plan to be working full-time in October 1985.

THANK YOU FOR COMPLETING THE QUESTIONNAIRE.

APPENDIX C

EMPLOYER QUESTIONNAIRE

PART I. General Information

1. Employee name _____
(Last) (First) (Middle)

2. Is the above named person presently in your employ?

_____ Yes
_____ No

If yes, go to question 4.

3. If no, was this person ever employed by your organization?

_____ Yes
_____ No

If no, please return form in pre-addressed envelope. Thank you.

If yes, go to question 4.

4. Supervisor's name _____
(Last) (First) (Middle)

Your Position _____

5. Employee's current job title _____

6. Months the employee has worked for your company _____

7. Months the employee has worked under your supervision _____

PART II. Employee Evaluation

(Circle the correct number for each item)

Comparing the above named employee with other workers in the same occupational group, rate the employee on each of the following characteristics. (1 = poor; 2 = below average; 3 = average; 4 = above average; 5 = excellent)

- | | | | | | |
|---|---|---|---|---|---|
| 1. The quality of work. | 1 | 2 | 3 | 4 | 5 |
| 2. The quantity of work. | 1 | 2 | 3 | 4 | 5 |
| 3. Possesses specific job-related knowledge important to success on this job. | 1 | 2 | 3 | 4 | 5 |

4. Is able to operate the equipment and apparatus used on the job.	1	2	3	4	5
5. Writing, reading, verbal communications, and computation (math) skills.	1	2	3	4	5
6. Work habits and attitudes necessary for success on the job.	1	2	3	4	5
7. Accepting directions from his supervisor.	1	2	3	4	5
8. Following instruction from supervisor and management.	1	2	3	4	5
9. Willingness to accept responsibility.	1	2	3	4	5
10. Punctuality/work attendance.	1	2	3	4	5
11. Ability to work effectively without supervision.	1	2	3	4	5
12. Willingness to learn and improve on work performance.	1	2	3	4	5
13. Cooperation with co-workers.	1	2	3	4	5
14. Cooperation with management.	1	2	3	4	5
15. Compliance with company policies, rules, and practices.	1	2	3	4	5

PART III. Comparing the employee with other workers in the same work group, rate the employee's overall competency, effectiveness, over-all work attitudes for successful job performance. (CHECK ONE)

- _____ a. In the top 1/4.
- _____ b. In the top 1/2, but not among top 1/4.
- _____ c. In the bottom 1/2, but not among the lowest 1/4.
- _____ d. In the lowest 1/4.

Title of Respondent _____

Thank you for your time.

APPENDIX D

ce of
principal

_____ High School

June 5, 1985

Dear _____ High School Graduate:

A follow-up study of 1984 graduates of this school is being conducted by _____ High School with the cooperation of Virginia Tech. The purpose of this project is to examine the relationship between the education of high school graduates and their success in the world of work. The project would help to improve available programs to better serve our students.

Your completing this questionnaire would be highly appreciated. It will take only 10-15 minutes to complete. Your returning this questionnaire is very important for this study to be effectively completed. Five of all returned responses have a chance to win \$25 each in a drawing to be held on June 27, 1985. Beat this deadline!

For your convenience, a stamped, self-addressed envelope is enclosed for the return of the questionnaire. Let me assure you that your response to the questionnaire will be held confidential. Your name will not be used in the results of the study.

Sincerely,

/signed/

Principal
_____ High School

DW/cmr

Enclosures



June 7, 1985

Dear _____ High School Graduate:

A follow-up study of 1984 graduates of High School is being conducted with the cooperation of your former high School. The purpose of this project is to examine the relationship between the education of high school graduates and their success in the world of work. The project would help to improve available programs to better serve students.

Your completing this questionnaire would be highly appreciated. It will take only 10-15 minutes to complete. Your returning this questionnaire is very important for this study to be effectively completed. Five of all returned responses have a chance to win \$25 each in a drawing to be held on June 27, 1985. Beat this deadline!

For your convenience, a stamped, self-addressed envelope is enclosed for the return of the questionnaire. Let me assure you that your response to the questionnaire will be held confidential. Your name will not be used in the results of the study.

Sincerely,

Nicholas O. Akinkuoye
Graduate Research Assistant

NOA:cmr

_____ High School

_____ HIGH SCHOOL GRADUATES

FOLLOW-UP STUDY

June 20, 1985

Dear 1984 _____ High School Graduate:

Thank you for returning the questionnaire sent to you two weeks ago today.

If you have not completed and returned the questionnaire which was mailed to you on June 5, 1985, please do so at once. Your information is needed in order for this study to be effectively completed. We want you to have a chance to win \$25 to be given away to five people drawn at random from all returned questionnaires.

Sincerely,

/signed/

Principal
_____ High School

DW/cmr



_____ HIGH SCHOOL GRADUATES
FOLLOW-UP STUDY

July 8, 1985

Dear 1984 _____ High School Graduate:

Thank you for returning the questionnaire sent to you two weeks ago today.

If you have not completed and returned the questionnaire which was mailed to you on June 5, 1985, please do so at once. Your information is needed in order for this study to be effectively completed. We want you to have a chance to win \$25 to be given away to five people drawn at random from all returned questionnaires.

Sincerely,

Nicholas O. Akinkuoye
Graduate Research Assistant

NOA:cmr

_____ High School

_____ HIGH SCHOOL GRADUATES

FOLLOW-UP STUDY

June 28, 1985

Dear (Employer's Name) _____ :

A follow-up study of 1984 graduates of _____ High School is being conducted by this school in cooperation with Virginia Tech. The major purpose of the project is to examine the relationship between the education of high school graduates and their success in the world of work. This would help to improve available programs to better serve our students and the community.

Your completing this questionnaire would be highly appreciated. It would only take 5-10 minutes to complete.

For your convenience, a stamped, self-addressed envelope is enclosed for the return of the questionnaire.

Sincerely,

/signed/

Principal
_____ High School

DW/cmr

Enclosures



HIGH SCHOOL GRADUATES

FOLLOW-UP STUDY

June 28, 1985

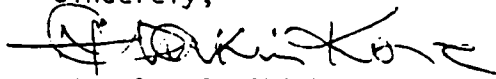
Dear (Employer's Name) :

A follow-up study of 1984 graduates of High School is being conducted by this school in cooperation with Virginia Tech. The major purpose of the project is to examine the relationship between the education of high school graduates and their success in the world of work. This would help to improve available programs to better serve our students and the community.

Your completing this questionnaire would be highly appreciated. It would only take 5-10 minutes to complete.

For your convenience, a stamped, self-addressed envelope is enclosed for the return of the questionnaire.

Sincerely,



Nicholas O. Akinkuoye
Graduate Research Assistant

NOA:cmr

ice of
principal

_____ High School

_____ HIGH SCHOOL GRADUATES

FOLLOW-UP STUDY

July 30, 1985

Dear (Employer's Name) :

Thank you for returning the questionnaire for 1984
_____ High School graduates. The questionnaire will be
used in the effectiveness study of our program and students.

If you have not completed the questionnaire sent to you
recently, please do so at once. The information is needed in
order for the study to be completed.

Sincerely,

/signed/

Principal

_____ High School

DW/cmr



HIGH SCHOOL GRADUATES

FOLLOW-UP STUDY

July 8, 1985

Dear 1984 High School Graduate:

Thank you for returning the questionnaire sent to you two weeks ago today.

If you have not completed and returned the questionnaire which was mailed to you on June 5, 1985, please do so at once. Your information is needed in order for this study to be effectively completed. We want you to have a chance to win \$25 to be given away to five people drawn at random from all returned questionnaires.

Sincerely,

Nicholas O. Akinkuoye
Graduate Research Assistant

NOA:cmr

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