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An Assessment of Vocational Technical Education Students' Literacy Levels and Awareness of Employer Expectations

Toni Woolfork
Western Michigan University

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AN ASSESSMENT OF VOCATIONAL TECHNICAL EDUCATION STUDENTS'
LITERACY LEVELS AND AWARENESS OF EMPLOYER EXPECTATIONS

by

Toni Woolfork

A Dissertation
Submitted to the
Faculty of The Graduate College
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Western Michigan University
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AN ASSESSMENT OF VOCATIONAL TECHNICAL EDUCATION STUDENTS' LITERACY LEVELS AND AWARENESS OF EMPLOYER EXPECTATIONS

Toni Woolfork, Ed.D.
Western Michigan University, 1993

This is a correlational study designed to determine the readiness of high school students to pursue employment upon graduation. The study consisted of 137 subjects in grades 10-12, enrolled in 11 vocational education classes within the Kalamazoo Public School System in Kalamazoo County. Subjects were administered both a literacy instrument designed to measure literacy levels; and a self-awareness inventory, designed to obtain demographic information and to assess each subject's knowledge or awareness of employer expectations as well as skills necessary for the workplace. Each teacher also completed an inventory, which allowed the researcher to determine the similarities between subject's and teacher's responses to the one question asked of both groups. Data analysis was conducted using Pearson R to determine various relationships between subject's literacy scores and other variables of the study.

There were four hypotheses for this study, and based on the results, two of the hypotheses were supported, the other two were not. The results suggest that: a relationship exists between subjects' literacy levels and their awareness levels at the .10 level of significance; there is a relationship between subjects' literacy levels and their performance on standardized tests at the .05 level.
of significance. There was no relationship between literacy scores for subjects' whose parents believed in the importance in education, and those who did not. Also there was no relationship between literacy scores for students who believed in the importance in education and those who did not.
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An assessment of vocational technical education students' literacy levels and awareness of employer expectations

Woolfork, Toni Yvette, Ed.D.
Western Michigan University, 1993
DEDICATION

This dissertation is dedicated to the memories of my family and friends who were involved with my life during some point throughout this project. Although your physical presence is no longer, your spiritual presence is never ending and, I will always love you.

To my aunts Jean Woolfork and Delores Hamilton, thank you for your love and support. To my nephews Charles Thomas Woolfork and Myles Lewis Lockhart, you will forever be in my heart. To my friend, Donald Troy, I never would have believed that you would not have been here, but God had a different plan. Your support, assistance, and friendship will never be forgotten. I love you Donald Troy.
ACKNOWLEDGEMENTS

Having completed this dissertation, I recognize that I did not do this without a great deal of moral support, words of encouragement, and motivation. Therefore, I would like to begin by thanking my committee chair, Dr. Robert Brinkerhoff, for whom I am grateful for his guidance, direction, and most of all his patience. Also thank you to Dr. Dale Brethower, and Dr. Charles Warfield for their willingness to serve on my committee, and be supportive in the process.

Without the support and participation of the Vocational Technical Education staff (Mr. James Rudnick, Director, Ms. Morgan, Ms. Forsberg, Mr. Strong, Mr. McManus, Ms. Kucera, Ms. Marks-Dooley, Mr. Milks, Ms. Finch, and the vocational education students) this research study would not have been possible. I sincerely appreciate your involvement. Also thank you to Ms. Christine Williams, Coordinator of Student Information Services, and Ms. Dianne Spencer, Coordinator of Testing and Grants (Kalamazoo Public School System) for your time and assistance. To Ms. Linda Knox, Ms. Pam McKenzie and Ms. Lynn Riptoe, your assistance in administering and checking the instruments, helped more than you realize, and for that I am thankful.

I am a strong believer in the importance of family, and without my parents, siblings, and grandmother, Thomas, Gladys, Delphine, Charles, and Rosie, this task would have undoubtedly been more challenging. Thanking you seems so small in the scheme of things,
but I do thank you for being there and providing the foundation that I needed to successfully complete this endeavor.

To my special friend, Dr. Ollie Barnes, my husband, you were there every day, giving words of encouragement, a jump start when I needed it, and your unconditional support, thank you.

Toni Woolfork
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CHAPTER I

STATEMENT OF THE PROBLEM

Worldwide, illiteracy has become a major focus of attention, primarily due to the negative economic consequences that companies have encountered. The United Nations Educational and Cultural Organization (UNESCO) declared the year 1990 as International Literacy Year; UNESCO estimates that by the year 2000 there will be in excess of one billion people considered as illiterate throughout the world (Jennings & Purves, 1991). Nationally, of the 158 member nations in the United Nations, the United States currently ranks 49th in national literacy (Rothwell & Brandenburg, 1990).

Literacy in the work force is a major issue, as the United States productivity and competitiveness is negatively affected. According to Chisman (1989), the United States has recognized the urgency to assist employees in improving their literacy skills, primarily because of the economic ramifications being experienced throughout the industrial United States.

Within the past 15 years, the United States (which includes business, government, educators, and consumers) has recognized that quality is important to American consumers and that a commitment to improve quality could sustain the American economy. The American workforce is confronted with many entry-level employees who have limited literacy skills which affect the successful implementation of
programs developed to increase services, productivity, and quality. A commitment to quality is meaningless without a workforce that is capable of functioning on a day-to-day basis, implementing procedures which enable competition in the international market.

Currently, illiteracy poses a threat to the welfare of the United States. Chisman (1989) states that the United States cannot maintain a healthy economy, fend off foreign competition, improve productivity, and in general, maintain its standard of living, unless the skills of the workforce are substantially improved. In a report by the Department of Education and National Science Foundation, American competitive problems are blamed on widespread "scientific and technological illiteracy" (Hymowitz, 1981, p. 1). According to Rothwell and Brandenburg (1990), "employers are finding it increasingly difficult to recruit, train, retain, and retrain workers possessing skills that were once taken for granted" (p. 11). The traditional pool of qualified 16 to 24-year-old workers entering the workforce is shrinking, and employers are reaching out to less qualified workers to develop entry-level work forces (United States Department of Education, 1992).

For example, Horton (1987) states an example in which the CEO of a major manufacturing company had difficulty staffing manufacturing facilities because the company was unable to hire people who were qualified to meet the needs of the company. Ultimately, the company implemented its own technical education program to ensure that employees were trained in a manner that would facilitate the appropriate operations of the companies' factories.
The statistics reflecting the severity of the problem of literacy are staggering; for example, the United States Department of Labor's data indicated that in 1982, 75% of eight million employees lacked literacy prerequisites for on-the-job training (Chandler, 1987). In 1988 one out of every eight employees read at no more than a fourth grade level and one out of five read only at an eighth grade level (McGraw, 1988). Each year another 2.3 million functional illiterates age 16 or older join the nation's employment pool (Goddard, 1987).

The United States Department of Education estimates that 30% of unskilled workers, 29% of semiskilled workers, and 11% of all managers, professionals, and technicians are functionally illiterate (Goddard, 1987). The United States Bureau of Labor Statistics also estimated that in 1985, 38% of the population above 16 years of age had neither completed high school nor enrolled in vocational or secondary training, and in 1976 over 57,000,000 people were identified as illiterate (The Right to Read, 1985).

The issue of literacy demands attention; it cannot be swept under the carpet because of the increasing mismatch between the kinds of jobs created by the economy and the qualifications of those available to fill them (Berney, 1988). The number of persons reported as illiterate or semi-illiterate is estimated between 20 to 30 million adults, meaning their basic skills are below the fifth grade level (Berney, 1988).

Overall, the skills gap is costing the business community an estimated 20 to 30 billion dollars annually in low productivity, work
place accidents, absenteeism, poor product quality, and lost managerial and supervisory time (Berney, 1988; Rothwell & Brandenburg, 1990). Although illiteracy is not unfamiliar, its affect on the workplace did not previously cause reason to be concerned about the level of quality, productivity, nor the competition within the international market. Literacy was not a prerequisite for most employment; most jobs could be done without having to read, write, or speak English.

What was adequate 20 years ago to be functionally literate has changed dramatically (Lee, 1986; Moore, 1992). Employers no longer grant employment opportunities for individuals who are passive and who require constant direction and supervision. Employers seek to employ persons who are self-motivated, and capable of positively impacting an organization's success. Reading, interpreting, problem solving, and analyzing are a few of the requirements that employers expect employees to be equipped with. Twenty years ago, being literate, or more than functionally literate, may have been the exception, but today it is the rule.

Businesses see increasingly that many of their employees have poor basic skills and that there is a direct link between educational deficiency and on-the-job functioning ("Job Related Basic," 1987). The requirements of entry-level work have changed, therefore, mandating higher levels of verbal, written, and math skills for entry-level employment ("Literacy in the Workplace," 1989).

The fact is, American businesses are experiencing difficulty with the labor force lacking basic skills for on-the-job functioning.
and that the demand for a skilled work force has increased. A second reason appears to be that industry has progressed to a point where employees cannot be successful without having the necessary skills to meet the goals and objectives of the organization. The number of jobs requiring little or no literacy is shrinking, and the amount and complexity of literacy demands have increased in the majority of the work force (Mikulecky & Others, 1987). New technology requires better than normal reading abilities from all employees. Procedures such as statistical process control demand math skills from workers for whom job experience once sufficed (Lee, 1986).

To effectively compete, the United States must develop a work force capable of providing service and quality products, but first, they must be capable of functioning competently in technical environments. Technical organizations consist of positions in which computers are increasingly utilized in daily operations. Also, quality assurance programs, and robotics are used to increase productivity (Beale, 1989). It is the belief of this researcher that improved literacy levels may mean the survival of the American industry.

By the year 2000, according to the president and the nation's governors, "every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship" (National Adult Literacy, 1989). The other goals include having all children entering school "ready to learn," decreasing the dropout rate, and having American students rank number one in the world of mathematics and science (Stevenson & Stigler, 1992). This is a very optimistic
goal, although Stevenson and Stigler (1992) suggest that accomplishment of these goals are not realistic until a means for how they will be attained is addressed.

The government has invested in adult literacy programs for approximately 15 years, and continues to do so. However, another variable that must be considered is improved literacy skills for students currently engaged in the educational process, as they are the future leaders of the 21st century.

The United States is confronted by the fact that by the year 2000, the country will have a population comprised of people who have traditionally been represented in terms of the minority, and under-represented in areas of the work place which require higher levels of basic skills, education, and training (Bernandon, 1989; Moore, 1992). In 1990 4.1% of students in grades 10-12 dropped out of high school before graduation; this figure represents approximately 347,000 students. In addition, longitudinal data revealed that about 7% of eighth graders enrolled in the spring of 1988 dropped out before the end of their sophomore year (Kaufman, 1991); many students currently engaged in the educational process are ill prepared to assume entry level employment upon graduation from high school; many students lack basic literacy skills and in comparison to their international counterparts, they have performed poorly on tests of achievement (Hirsch, 1992); 22% of the labor market will be comprised of younger employees (McAdoo, 1989); and additionally, 700,000 students graduate each year without having the skills to read their diploma.

According to Naisbitt and Aburdene (1985), unskilled people are
the one obstacle to re-inventing the corporation. Hence, the United States is in a serious dilemma. There is a need to ensure that all people, adults and young adults, have the level of training and education needed to pursue a decent quality of life, and contribute to the success of the United States. As the President succinctly states, the possession of knowledge and skills are necessary for competition in the international market (National Adult Literacy, 1989).

Purpose

The need to improve adult literacy skills has been recognized. Nationally and locally, literacy organizations and agencies have been in existence since the 1960s. During the late 1960s the United States Office of Education implemented the national Right to Read effort which was committed to eliminating illiteracy within the following decade (Auten, 1980). Sticht and his colleagues developed projects named REALISTIC, READNEED, LISTEN, and FLIT, which were designed to identify the literacy demands of army jobs and methods for improving reading skills of personnel through literacy training (Auten, 1980). Four major literacy efforts cited by Kozol (1985) are: Adult Basic Education, United States' Military Program, Laubach Literacy, and Literacy Volunteers of America. The Department of Labor also sponsored the Workplace Literacy Assessment, which was a large scale assessment project (Kirsch, Jungeblut, & Campbell, 1991). In addition, the Business Council for Effective Literacy founded in 1983, disseminates a monthly newsletter, and serves as a catalyst.
between business and literacy communities, and works to promote good practice and public policy as it relates to literacy ("Family Literacy," 1989). Without question, there are a myriad of literacy efforts that have been implemented and most, if not all, have focused on the adult learner. The Superintendent of Public Instruction for the state of California, for example, noted that students must also be educated to higher levels of literacy than ever before so that they too can compete in the job market (Educational Testing Services, 1990).

Throughout the country adult literacy programs have been implemented, and although students who are enrolled in school systems throughout the country are learning, students continue to graduate with deficient literacy skills. Upon graduation, approximately 50% of American young adults will pursue employment, and a large percentage of those students will include students enrolled in vocational education programs. Unfortunately, employment opportunities are not plentiful and since 1986 the unemployment rate is three times the national average for students not pursuing a post-secondary education (Nardi, 1991).

The earning potential for high school graduates has decreased significantly over the years. In a recent report "The Forgotten Half," the author notes that the decline in real annual earnings for college graduates was 6%, versus 28% for high school graduates. For Black males the decline was 44% for high school graduates and 61% for dropouts (Nardi, 1991).

The employment future for high school graduates represents a
pessimistic outlook. In addition to skill deficiencies, it is possible that students have limited knowledge as to what employers look for in an employee. Therefore, the purpose of the study goes beyond singly assessing the literacy levels of high school students enrolled in vocational education programs, to determine student's level of awareness for what employers look for in an employee, and their level of awareness as to what literacy and other skills are necessary to obtain employment.

Research Design

This is a correlational study designed to determine the readiness of high school students to pursue employment upon graduation. The study consisted of 137 subjects in grades 10-12, enrolled in 11 vocational education classes within the Kalamazoo Public School system in Kalamazoo County. Subjects were administered both, a literacy instrument designed to measure literacy levels, and a self-awareness inventory designed to obtain demographic information and to assess each subject's knowledge or awareness of employer expectations as well as skills necessary for the work place. Also, each teacher completed an inventory which allowed the researcher to determine the similarities between subject's and teacher's responses to the one question asked of both groups. Data analysis was conducted using Pearson R to determine various relationships between subject's literacy scores and other variables of the study.
Limitations

There were limitations in this study that should be noted. Whenever possible, random selection of subjects is recommended (Isaac & Michael, 1983; Kerlinger, 1986). However, random selection was not possible for this study and therefore subjects were identified to participate because teachers voluntarily agreed to include their vocational technical education class or classes in this study.

The second limitation involved was the design of the study. The layout of this study was designed to evaluate the subject's literacy levels and to ascertain their readiness to pursue employment upon graduation. Although the researcher provided subjects with feedback pertaining to their test scores, and in addition recommended they seek assistance from teachers in areas where they experienced difficulty, the study was not designed to address areas of weakness nor provide subjects with basic skill instruction. Therefore, this too was a limitation of the study.

The third limitation involved measurement of subject's responses. Some of the data requested on the self-awareness inventory required opinions, perceptions, and self-report data from subjects regarding their parents. Intentionally or unintentionally, subjects may have responded inaccurately to several of the questions. There was no way to determine the accurateness of the responses.

Definitions

According to Kirsch et al. (1991), literacy is studied in
varying contexts, just as people's literacy behaviors are varied and used for diverse reasons. The uses of literacy are broad and change across contexts, schools, work place, and community.

Characteristically, literacy was defined in terms of an individual's basic reading and writing skills (Geroy & Erwin, 1988). According to Jennings and Purves (1991), defining literacy was an individual cognitive phenomenon once considered simple, basically entailing testing for reading and writing skills. Today, literacy is defined in a vast number of ways; however, there is no one standard definition of literacy. The definition of literacy has evolved.

Defining literacy has been a difficult task. In many instances, grade level equivalence has been used when defining literacy. In the United States, for example, scholars have at various times since 1968 established a number of different grade equivalencies for adult progress (Kozol, 1980). First, a seventh grade level was established because it was agreed that most newspapers were written using seventh grade vocabulary. Prior to 1968, during World War II, the United States Army decided that the fifth-grade level was an appropriate literacy standard. Eventually, it was the consensus that individuals who could read and write at an eighth-grade level were considered literate. The Adult Basic Education Act of 1968 also established eighth grade as the appropriate level (Kozol, 1980).

Many experts agree that the traditional definition of literacy, the ability to read and write, is no longer acceptable in today's society. Although there is agreement regarding the traditional definition of literacy, authors and researchers have not established
a universally accepted definition for literacy (Rothwell & Brandenburg, 1990).

Functional literacy, external literacy, and occupational literacy are examples of different definitions of literacy. Kozol (1980) defines conventional literacy as the ability essentially to read, write, and comprehend texts on familiar subjects and to understand signs, instructions, labels and directions that are necessary to get along within one's environment.

In Lee's (1986) article, work place literacy is defined by Harmon on two levels, "the skill of deciphering written materials and extracting meaning from those materials" (p. 65). Occupational literacy is defined as the ability to competently read required work related materials (Rush, Mose, & Storlie, 1986). Goddard (1987) suggests that each work place and job requires its own definition of literacy. In one setting literacy means reading blue prints and electrical codes; in another setting, comprehending elementary statistics or writing an operations reports. The definition of literacy is continuously changing based on the fact that technological change occurs every 3 to 5 years, making workers' specialized knowledge and skills obsolete (National Literacy Secretariat, 1991).

Rothwell and Brandenburg (1991) expanded the definition of literacy to encompass basic life skills. The authors believe that basic life skills have a broader meaning than literacy; it refers to all fundamental abilities needed by individuals to function independently as adults in society. The two basic skill categories are basic personal skills and basic employability skills. Basic personal
skills are necessary to function responsibly in all contexts outside the work place. Basic employability skills are abilities needed by individuals to find and hold gainful employment. Lee (1986) quotes Dr. Harmon as stating that literacy is an "agglomeration of skills and abilities and knowledge, with conventional literacy serving as the mechanism for tying them all together" (p. 4).

The difficulty associated with defining literacy is that "there is no single measure or specific point on a scale that separates the literate from the illiterate" (Kirsch, Jungeblut, & Campbell, 1992, p. 13). In an effort to incorporate the many points of view related to literacy, Educational Testing Services (ETS) brought together panels of experts who helped set the framework for the young adult assessment conducted in 1985. Through the panel's deliberations, adoption of a different definition of literacy (below) resulted. Literacy oftentimes is considered to be a set of isolated skills connected to reading and writing, but according to the expert panel, literacy is considered to be the application of these skills for specific purposes and specific contexts (Kirsch, Jungeblut, & Campbell, 1992).

The definitions of literacy used in this study were as follows:

**Literacy**: is operationally defined as measurement of vocational education student's skill level in math and English through use of the Test of Applied Literacy Skills.

**Literacy**: conceptually defined is using printed and written information to function in society, to achieve one's goals and to develop one's knowledge and potential (Kirsch, Jungeblut, & Campbell,
1991). Literacy and basic skills are used interchangeably.

Other Key Definitions

**Employment:** provides a means for one to work and earn a source of income.

**Employment skills:** the ability or proficiency to complete tasks necessary for obtaining or maintaining a job.

**Entry level job:** a position with a company or business that is offered oftentimes to one seeking a first-time job.

**Grade point average:** the average grade earned by students. It is obtained by dividing the grade points earned by the number of credits attempted.

**Iowa Test of Basic Skills:** is a norm referenced test used as an indicator of academic achievement (Hieronymus & Hoover, 1986).

**Vocational education student:** a student enrolled in vocational education classes.

**Vocational technical education:** provides the foundation for obtaining entry level positions in the world of work as well as skills needed to pursue advanced education.

**Michigan Education Assessment Program (MEAP):** is designed to measure student achievement in the areas of science, reading, and mathematics throughout the state of Michigan.

**Tests of Applied Literacy Skills (TALS):** TALS includes three sections on literacy, prose literacy, document literacy, and quantitative literacy. Each test is designed to address areas of literacy that reflect day-to-day living.
Good job: a position requiring a median or high level of skill that is more than 3 month's training (Barto, 1991).

Organization of Study

Presented in Chapter I is the statement of the problem, purpose of the study, research design, limitations and definitions. Chapter II includes a review of the literature and Chapters III and IV provide the methodology for the study and findings from the analysis of the data. The final chapter, Chapter V, will provide recommendations for future investigation into research relating to literacy and vocational technical education students.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter presents a review of literature in the following sections: (a) historical perspective of literacy, (b) literacy and vocational education research studies, and (c) measurement of literacy.

Introduction

Vocational education is intended to equip students with transferrable skills for employment. Although vocational education students are taught trades that will presumably meet employer expectations, many lack the essential academic preparation in fundamental skill areas, such as math, reading, and english. Consequently, the issue of whether or not vocational education students have obtained basic literacy skills, and can assume an entry-level position is brought into question. Employers consistently express frustration in trying to hire persons for entry level positions: The complaint is that our young people are not prepared, and that they are not aware of what employers demand from their employees.

In order to provide students with information that will identify their strengths and weaknesses in basic skills, this study is designed to assess vocational education students' literacy levels and their awareness of employer expectations for the work place. This
study is not designed to make judgmental statements about the school system nor those teaching in the system.

Historical Perspective of Literacy

As a nation, we have put a high premium on literacy skills because of the impact on both the well-being of the individual and society as a whole. During the last century literacy has become even more important as society transformed from a predominantly agrarian society to an industrial one (Kirsch et al., 1991). Due to this transformation, society has required increasing numbers of individuals to possess a core set of skills and knowledge in order to meet changing societal needs (Kirsch et al., 1991).

Historically, western literacy was formed and shaped by unwritten words. In earlier decades, literacy was highly restricted and a relatively unprestigious craft, and there was little association with wealth, power, status, or knowledge (Graff, 1987). The commercial revolution during the Middle Ages up until the industrialization of the 18th century in rural areas and the urban factory owed little to popular literacy abilities or schooling. The demands of early industrialization upon the labor force were rarely intellectual or cognitive, and many times industrialization reduced opportunities for schooling and consequently, the levels of literacy were sacrificed (Graff, 1987).

During the 18th century society's attitude towards literacy indicated that education catered to members of a higher echelon. Many philosophic promoters believed that expanding education would
lead to the loss of labor and that a rise of dissatisfaction among people would occur. These philosophic promoters wanted a nation of minimally educated, virtuous, and peaceful farmers and workers, ultimately leading to a new society with a population capable of being well governed (Graff, 1987). There were also those who advocated education and literacy for all citizens. It was suggested that all members of society should be required to learn how to read, write, and count for economic reasons, so that education would also counteract the deadening of daily drudgery in manual labor (Graff, 1987).

The literacy debate continued up until the 19th century, at which time education began to be viewed as a means of progress. According to Graff (1987) "optimists" embraced the argument that proper educational environments could lead to a more equal society and that education was an equal right; their efforts were defeated. "Pessimists" promoted education for the poor, suggesting that training be used as a means to assist these people to accept their inferior status. Their goal was to control members of the underclass, not provide an avenue for advancement.

Today, education is presumed to be a means for political, cultural, social, and economic advancement, and a means by which members of society are expected to achieve a level of literacy, equipping them with the ability to attain success in the workplace. Literacy skills are considered to be a prerequisite for employees who expect to fully meet the demands of the workplace.

During the 1960s, many high school graduates, and even those
without a high school diploma had vast employment opportunities with large industrial-based organizations. The automotive and steel industries, in particular, ensured incomes that were significantly above the poverty level. For those seeking employment, a lack of education was not an obstacle for securing a position.

Thirty years later, and the employment scenario has changed dramatically. No longer will a docile, loyal employee, willing to work until retirement, be acceptable in the workplace (Rutherford, 1989). Employers want people who are literate. Literacy skills enable employees to learn new things, and this is an asset for any company. Also, employers expect to hire employees who have completed high school (having mastered the basic skills), and possibly some college. A prospective employer may also require employment testing.

In addition, employers want employees who can problem solve, be creative, communicate, and work as a cohesive team member.

**Literacy and Vocational Education Research**

The topic of literacy has consumed a great deal of attention, and as a result, numerous research studies have been conducted addressing basic literacy training. Educators and labor leaders agree that unless education and vocational training programs are restructured to equip learners and employees with skills to help them function productively in the workforce, a two-class society will result in the employed and the unemployable (Philippi, 1988).

Leaders from the business sector, the military, and academia are concerned about the lack of skills of their employees and students.
alike. An article in the Wall Street Journal (Hymowitz, 1981) highlighted an industry report resulting from workers unable to meet literacy demands of their jobs. The vice-president of JLG Industries, Inc. (manufacturer of cranes and aerial lifts) reported that poorly educated workers were the company's number one problem—the main factor slowing the company's growth. The JLG company reported spending over one million dollars to correct mistakes made by employees with poor literacy skills.

Mikulecky and Cousin (1982) conducted survey research including 100 employees representative of occupations ranging from the positions of executive vice-president to forklift driver. The findings of the study indicated that only 2% of these occupations required no reading. The level of difficulty for the majority of job-related reading materials ranged from 10th to 12th grade levels.

Diehl and Mikulecky (1980) also conducted a study to gain more insight about functional literacy demands and the abilities needed by people facing those demands. Subjects were administered the Diehl-Mikulecky Job Literacy Survey which included items that assessed literacy demands encountered in occupations and the strategies subjects used to meet those demands. As part of the survey subjects were asked to show and describe reading tasks that had to be completed on the job. These tasks were rated according to the type of display, frequency of use, and the importance of the job. When possible, the actual reading materials were collected and a readability level was determined by using the FORCAST formula. Based on the responses to the survey, four categories were established according
to the type of strategy used in completing tasks. The four categories were: (1) reading-to-learn, (2) reading-to-do, (3) reading-to-do with incidental learning, and (4) reading-to-assess.

The results and conclusions of the study suggest that: (a) a large percentage of subjects reported doing some reading each day at work (therefore making job related reading an important aspect of functional literacy), (b) literacy "demands" of the workplace are increasing with technological changes; reading tasks on the job are highly repetitive and are completed in conjunction with specific job tasks and are viewed as external memories, (c) the job task itself provided more extra linguistic cues; (d) and that reading in school settings may be quite different than reading at work.

According to much of the literature, reading is fundamental for job related training (Auten, 1980; Chang, 1977; Mikulecky & Diehl, 1980). Mikulecky (1982) conducted another study which examined literacy demands, competencies, and strategies (present in day-to-day reading of students, and workers) as a means for determining the extent to which literacy is preparation for various occupational literacy demands. The 249 subjects involved in the study consisted of 48 high school juniors, 51 adult technical school students, and a cross section of 150 adult workers from various occupations, ranging from blue collar to professional/technical. Subjects were interviewed in 45 to 60-minute increments to determine (a) the amount of daily reading; (b) the scope, depth, difficulty and type of reading; (c) the general and job literacy competence of each subject; and (d) the purposes, strategies, and alternatives to literacy employed by.
each subject. During the first part of the interview, subjects were asked to respond to checklists, eliminate the amount of reading time, and respond to a series of reading behavior items which were read to the subjects. The last part of the interviews involved discussing, actual reading material, alternatives to reading, and completing oral and written tests on reading materials. The results of the study indicated that students read less competently, and with less depth and that students used less effective strategies used by employees.

The National Assessment of Educational Progress (NAEP) conducted an assessment of the literacy skills of America's young adults in 1985. Approximately 3,600 young adults between the ages of 21-25 years of age living in the 48 contiguous United States were included in the study. The assessment was conducted by 500 interviewers, each interview lasted about 90 minutes. Approximately 60 of the 90 minutes involved measuring proficiencies on tasks emulating ones encounters on a daily basis in adult settings. The balance of the assessment was devoted to obtaining background information such as current reading and writing activities, occupational status, educational and early language experiences, and home characteristics.

Several findings were revealed in this study, one being that a large percentage of young adults perform tasks on the Tests of Applied Literacy Skills at the lower levels on each of the three scales (prose, document, and quantitative). However, a sizeable number of young adults appear unable to do well on tasks of moderate complexity, and a relatively small percentage is estimated to perform more complex and challenging tasks. Also findings suggested that home
support variables were significantly related to type and amount of education and to the literacy practices reported by young adults included in the study (Kirsch & Jungeblut, 1986). The information obtained from the interviews is compiled on a data tape that is available to the public, as is the full final report of the assessment.

Many critics (parents, employers, students) of the American educational system would argue that students, in general, are failing to meet the challenge when (a) competing academically with their international counterparts (Stevenson & Stigler, 1992); (b) competing for entry level employment; (c) and that students are often times apathetic, unmotivated and lack the necessary literacy skills in mathematics, reading, writing, and science. According to Rutherford's (1989) article "The Basic Skills Gap: Whose Problem, Whose Solution?"

Only 27% of young adults could interpret a lengthy feature story in a newspaper; 28% of young adults were unable to write a letter explaining that an error had been made in billing; only 25% of the Black young adults and 41% of Hispanics - compared to 61% of whites - could be classified as adept readers. (p. 15)

Many students enrolled in vocational education programs would not be classified as "adept readers," primarily because vocational education programs and low achieving students are almost synonymous. Sherrell (1978) conducted a study to determine the reading levels of the average vocational education student, and to determine whether or not their reading ability was commensurate with the reading materials assigned to students. The results indicated that most of the
students read below their grade level of attainment.

The typical vocational education student usually received their lowest grades in academic subjects, and their parents and relatives were working class people from skilled and semi-skilled occupations. Few parents were college graduates; I.Q. scores were usually less than that of the school population (Clay, 1973). Today vocational education students are viewed in the same light. Several studies including vocational education students as subjects, have been conducted, and one similarity that remains constant is that vocational education students need good reading skills (Corman, 1980; O'Donnell, 1982; Penn, 1991; Thornton, 1988). "Success in vocational education programs is determined by the ability of students to obtain and sustain employment" (O'Donnell, 1982, p. 474). O'Donnell (1982) clearly states that there is a need for students to be able to read literature specifically required for a given job task.

Visinski (1981) investigated reading skills required by employers for entry level bookkeepers. The results proved that reading is necessary and involves reading skills needed for learning the job and to do the job. Reading materials found in various settings may not resemble materials found in classroom texts, a great deal of the material is written using technical language. As Thornton (1988) puts it, "the literature is of the wide range of degree of difficulty" (p. 4). To facilitate improved reading and comprehension levels, school systems will have to consider adopting new texts that are directly related to areas of vocation.

Penn (1991) conducted a practicum which was designed to prepare
40 vocationally tracked high school seniors with literacy skills needed to successfully compete in the workplace by: assisting students in developing their vocational objectives, changing and utilizing new course materials specific for vocational students' needs, using problem-solving and decision-making models of job literacy, using a cooperative/team approach, and incorporating computer literacy and basic skills in the English curriculum.

In documenting the problem, Penn used three groups of data: grade point averages of vocationally tracked students compared to college bound students; surveys of 150 randomly chosen vocationally tracked students, their parents and employers, measuring curriculum satisfaction and job preparedness; and school wide, drop-out of vocationally tracked students compared to college bound students. Vocationally tracked seniors enrolled in a basic skills English course were selected to participate in the study.

The results from the study were very positive. The data indicated that with career education, relevant course materials, and cooperative problem solving, students' literacy skills were improved, preparing them to compete in today's highly technical workplace.

In Corman's (1980) report for the National Institute of Education (NIE) she concluded that verbal and computational skills are consequential for the development of vocational students. However, Corman maintains that further research is needed to answer the following questions: (a) What are the best ways to teach basic skills to vocational students? (b) To what extent can basic skill instruction provided in secondary schools to vocational students improve...
their basic skills? and (c) What methods are most likely to make instruction successful?

Corman (1980) recommends that (a) basic skills should be strongly emphasized in vocational education programs, (b) effective techniques are identified to teach basic skills to vocational students, (c) periodically vocational education students' levels of competence in basic skills be assessed, (d) and measures of particular basic skills that are highly job related should be used to supplement general reading tests. If vocational education programs are going to prepare students for not only employment, but also lifelong learning, implementation of these recommendations may be necessary for students enrolled in vocational education programs (Corman, 1980).

Measurement of Literacy

Before the 1800s, historians relied on measuring literacy by counting signatures taken from legal documents such as wills, marriage licenses, and deeds. In the mid 1800s the Census Bureau began accepting well-reported literacy rates as a means for measuring literacy. However, in the 1920s, as the self-reported literacy rates for Black citizens rose from 19% to approximately 77%, and the literacy rate for foreign-born white citizens was approximately 87%, and 96% for native-born white citizens, and because there were large numbers of individuals who could not meet the simplest criteria of literacy, the Census Bureau began to dispose of the acceptance of self-reported literacy rates (pp. 1-3). Also, the large number of
army recruits failing the World War I classification tests, and the fact that there was a growing excitement about the potential of standardized testing for educational purposes, set the stage for moving away from reliance on self-reported statistics toward standardized measures of reading/literacy based on demonstrated performance (Kirsch & Jungeblut, 1992).

According to Kirsch and Jungeblut (1992) there are three approaches to assessing literacy. First is the "traditional approach," which evolved due to things that transpired early on in history, and as a result "functional literacy" began to be equated with attaining a certain grade level on standardized objective tests of reading achievement. The traditional approach labeled persons who failed to attain the specified level as "illiterate" or "functionally illiterate" (p. 1-3). The assumption was that these individuals lacked the necessary reading skills to function in society.

A second approach to measuring literacy is the "competency-based approach." During the 1970s national performance surveys tried to go beyond school related reading tasks by expanding the scope of materials to include information that adults typically encounter on a day-to-day basis. The Adult Performance Level Project (APL) was one of the most publicized surveys conducted. In addition to reading and writing skills, "the APL project included measures of computation, problem solving, and interpersonal skills and reported results on the performance measures as they interacted with content areas such as occupational knowledge, consumer economics, health and law" (p. 1-4). Like the traditional approach, the competency-based approach
to literacy was also considered to be an ability distributed along a single continuum with a single cut point which labeled persons as illiterate or functionally illiterate.

The third approach to assessing literacy is the "profile" approach. With the profile approach, the NAEP's intention was to proceed beyond previous surveys which directed the focus from the traditional approach to the competency-based approach. The concern was to incorporate the many existing views regarding literacy. Therefore, Educational Testing Services convened panels of experts who helped develop the framework for the young adult assessment (Kirsch, Jungeblut, & Campbell, 1991). In the process, the panel adopted the following definition of literacy: using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential.

The definition and the design for the assessment plan reflected several major concerns; that literacy not be seen simply as a set of isolated skills associated with reading and writing, but more importantly, as the application of those skills for specific purposes in specific contexts. (p. 1-5).

Because of the complexity and diversity of literacy task, the consensus from the panel was that individuals not be categorized as either illiterate or literate. Due to the various literacy demands, a major goal of the NAEP assessment was to profile the literacy skills among young adults. As a result "literacy was conceptualized as a set of contextualized processes or practices rather than as a single standard" (p. 1-5). The theory associated with the young adult study made possible the gathering of data that resulted in three distinct
and important measurements and aspects of literacy, prose, document, and quantitative (Kirsch & Jungeblut, 1992).
CHAPTER III

RESEARCH DESIGN

Overview of Design

This section of the dissertation includes the purpose, a general design overview, population of study, procedures, instrumentation, hypotheses, data collection, and data analysis.

The purpose of this study was to assess the literacy levels of high school students enrolled in vocational education programs, and to determine student's level of awareness for what employers look for in an employee, and their level of awareness as to what literacy and other skills are necessary to obtain employment. The researcher administered two literacy instruments and an awareness inventory to high school juniors and seniors. Each teacher was asked to respond to a teacher inventory which contained two questions, one of which was also included on the student awareness inventory that students were asked to respond to. This allowed the researcher to determine the similarities between both groups' responses to the same question to further assess students' awareness.

Population of Study

The population of this study was students enrolled in vocational technical education (VTE) classes within two of the Kalamazoo public
schools. The sample consisted of 137 high school juniors and seniors, and 69 males and 68 females. These students represented eight high schools within Kalamazoo County.

The number of subjects included in this study was directly contingent upon the number of VTE teachers who volunteered to participate in the research. Eleven teachers offered to include their accounting/computer block, child care, auto-mechanics, electronics, welding, business service, and commercial design classes for participation. However, due to scheduling, there were actually eight teachers and a total of 11 classes that participated in the study.

Procedures

Prior to the beginning of the Kalamazoo Public School's academic school year, contact was initiated with the director of Vocational Technical Education to briefly discuss this research study. Further discussion ensued during a meeting with the director, and at that time the details were provided along with an outline of the proposed study. The director agreed to participate with the stipulation that only those VTE teachers volunteering to take part in the study would be included. Approximately six weeks following the initial meeting with the director, a teachers meeting was conducted. The researcher presented the proposed research, explaining the purpose and the methodology. Both the director and teachers had a chance to ask questions and review the literacy test and other instruments. Eleven teachers expressed interest in participating, but due to time constraints, 8 of the 11 teachers actually participated
in this research. Before testing began, each teacher was contacted by mail and phone to request the most convenient date and time for testing their class; three teachers requested the same day and time. Consequently, the researcher solicited the help of two assistants to aid in the administration of the tests. Both assistants were given a script for administering the test to ensure consistency across proctors.

In order to expedite the process of obtaining class lists, student identification code numbers, grade point averages, and standardized test scores, the researcher contacted the Kalamazoo Public School's Systems Coordinator of the Communication and Information department to seek assistance in securing the information mentioned above. Prior to releasing this information the coordinator asked for a letter formally requesting this information. The researcher delivered the letter to the coordinator as well as a copy for the director of the VTE program. Within 1 week the information was supplied to the researcher; however, the grade point averages and the standardized test scores were received approximately 1 month following the conclusion of the marking period, and the reason for this was to ensure that the researcher would have the most updated overall grade point averages for each student.

After receiving the student identification code numbers, a research assistant coded both test booklets and awareness inventories. This helped to increase subject's confidentiality. Before the researcher administered the instruments to any of the classes, she explained the significance of the code numbers and that their
names would never be used in this study, and that no one within the school system would have access to their test scores, including their teachers.

Instrumentation

The Test of Applied Literacy Skills (ETS Tests of Applied, 1990) was administered to all participating subjects. The test includes three sections: prose literacy, document literacy, and quantitative literacy. Due to time constraints, only two sections were administered by the researcher and two trained assistants. Below is a brief description of each test that was administered. The researcher selected the two tests because students are consistently exposed to both math and reading instruments within their schools, and therefore, the researcher believed that subjects' scores would be reflective of their performance on tests administered within their school.

Prose literacy: tasks involving the knowledge and skills needed to understand and use information from texts that include editorials, news stories, poems, and so forth.

Quantitative literacy: tasks involving the knowledge and skills needed to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials, such as balancing a checkbook, figuring out a tip, completing an order form, or determining the amount of interest from a loan advertisement. Again, due to time constraints, only two sections of the test was administered by the researcher and two trained assistants.

Each test was timed and divided into two sub-sections, each
sub-section requiring 20 minutes for a total of 40 minutes per test, and a combined 80 minutes to complete both tests. The awareness inventory took approximately 10 to 15 additional minutes to complete.

Educational Testing Services (ETS) (Kirsch et al., 1991) field tested the literacy assessment on a sample of approximately 4,500 people, in 33 states, in over 100 locations. The tests were specifically designed to address areas of literacy that reflect day-to-day living. Reported below is the average difficulty, estimated reliability, and the number of tasks for each form of the test.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Form A</th>
<th>Form B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Difficulty</td>
<td>.65</td>
<td>.67</td>
</tr>
<tr>
<td>Estimated Reliability</td>
<td>.91</td>
<td>.92</td>
</tr>
<tr>
<td>Number of Tasks</td>
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<td>24</td>
</tr>
<tr>
<td>Document</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Difficulty</td>
<td>.76</td>
<td>.73</td>
</tr>
<tr>
<td>Estimated Reliability</td>
<td>.92</td>
<td>.89</td>
</tr>
<tr>
<td>Number of Tasks</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Quantitative</td>
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<td></td>
</tr>
<tr>
<td>Average Difficulty</td>
<td>.53</td>
<td>.53</td>
</tr>
<tr>
<td>Estimated Reliability</td>
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<td>.88</td>
</tr>
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<td>24</td>
</tr>
</tbody>
</table>

Figure 1. Average Difficulty, Estimated Reliability, Number of Tasks by Scale and Form.

As previously stated, the literacy tests were administered by the researcher and two assistants. Teachers arranged their schedules so that the literacy tests and the awareness inventory could be administered during subjects' regularly scheduled class times. This allowed the researcher to take advantage of utilizing the classrooms that students were familiar and comfortable with.

Awareness Inventory

In addition to administering the TALS instrument, a researcher constructed student profile/awareness inventory was given to subjects. Teachers completed an inventory in which they responded to two questions, one of which was asked of subjects. The student awareness instrument (see Appendix A) was designed to collect demographic data, and data pertaining to subject's awareness level. The inventory assessed students' awareness on variables related to literacy skills needed for the workplace, beliefs about the importance of an education, and students' perceptions of their peers who have the potential to be successful in pursuing employment. To determine subjects' awareness and consistency between subjects' responses, teachers also had the opportunity to respond to one of the same questions that subjects were asked to complete. Prior to administering the instruments to subjects, the researcher asked six of the teachers on an individual basis if they would complete the teacher inventory; the other two teachers were not present at the time of testing, therefore, the inventory was given to the regular classroom teachers upon their return. All of the teachers who participated in
the study completed the teacher inventory either during the time that
subjects were taking the TALS, or sometime after the instruments were
administered to subjects.

In developing the student profile/awareness inventory, and the
teacher inventory, questions were formulated based on the variables
discussed in the overview of design section. The questions on the
inventory were generated to: (a) collect demographic information,
such as gender, grade, school, and race; (b) learn about student's
future plans specifically related to education; (c) assess parent's
educational attainment and how it may relate to student's future
plans and their feelings about the importance of high school and
college; (d) assess student's perception about their preparedness in
basic skill areas and their performance on the TALS literacy assess-
ment; and (e) assess their knowledge of what skills are important for
a good entry level position, and the salary they could expect to earn
when looking for a good entry level job (see Appendix A).

Subjects could receive a possible total of 66 points. The
researcher included questions 6-9 and 11-17 (see Appendix A) for
scoring because these questions provided an indicator as to the
subjects' level of awareness about the importance of education, their
level of awareness regarding their basic skills, and the skills
essential for securing good entry-level positions. For questions 6-9
subjects could receive 20 points, for questions 11-12 a total of 9
points could be received, a total of 4 points were possible for
question 12, and 15 points for question 14. For the remainder of the
questions subjects could have received 1 point for question 15, and a
total of 4 points for both questions 16 and 17.

In constructing the student profile/awareness inventory, the researcher developed questions based on the 5 areas above. The first, second, and third drafts of the inventory were reviewed by experts in the area of research and questionnaire construction. Based on the feedback received, the researcher modified the awareness inventory to reflect the recommended changes. Once the changes were made, the researcher field tested the instrument as recommended by Isaac and Michael (1983). Twenty high school and college students were asked to complete the instrument and make suggestions or comments regarding any changes or areas that needed clarification. Also, both the VTE director and teachers had an opportunity to review the inventory prior to administration of the instruments. Neither students or teachers had suggestions for additional changes.

As discussed above, the teacher inventory (see Appendix D) included two questions, one of which was identical to one of the questions on the subject's awareness inventory. In an effort to assess subject's awareness about their peers who had the potential of being successful in obtaining a good entry level job, the researcher included a question that asked both teachers and students to list classmates or students they believed would be most successful in acquiring a good entry-level position. The researcher was interested in examining the similarities in the responses of the subjects and teachers. The teacher inventory was also reviewed by the same persons who reviewed the student awareness profile, and several teachers were asked to respond to the clarity of the questions. The inventory
was also critiqued prior to data collection. Based on feedback received, there was no need to make changes on this particular instrument.

Research Hypotheses

1. Vocational education students scoring high on the literacy assessment will score high on the awareness inventory regarding their preparedness to enter into the workplace; and vocational education students scoring low on the literacy assessment will score low on the awareness inventory regarding their preparedness to enter into the workplace.

2. There is a relationship between vocational education student's literacy assessment scores, standardized test scores, and cumulative grade point average (GPA).

3. There is a relationship between literacy scores for vocational education students whose parents believe that education is important and vocational education students whose parents do not believe education is important.

4. There is a relationship between literacy scores for vocational education students who believe education is important and vocational education students who do not believe education is important.

Data Collection

During December and January of 1992-1993, data were collected through administration of both the Test of Applied Literacy Skills,
and the researcher constructed student profile/awareness inventory, and the teacher inventory was also used. As previously stated, the literacy tests were administered by the researcher and two assistants. Teachers arranged their schedules so that the literacy tests and the awareness inventory could be administered during subjects' regularly scheduled class time. Due to extra-curricular obligations, several subjects were not able to complete the prose literacy test. Therefore, these subjects were not included in the data analysis. In addition, data were collected on subject's standardized scores and GPA, which were retrieved through school records with assistance from the Coordinator of Communication and Information Department. Subjects' identity and scores remained confidential, and at no time were their names used in the study. Although both the teacher and researcher explained the confidentiality of the test scores, this researcher believes that some subjects were not serious about the literacy assessment, nor the awareness inventory, in which case, an accurate evaluation of a subject's literacy scores or awareness level was not possible. The research assistant also assigned individual code numbers to each literacy instrument and student profile/awareness inventory to ensure anonymity.

Approximately 8 weeks after conclusion of data collection, the researcher met with subjects and gave them an opportunity to review their tests and ask questions. The information presented to subjects focused on what the test scores reflected, and suggestions for areas that required concentration for skill improvement. Also, subjects were informed that they would receive their tests before the
conclusion of the academic school year.

The researcher indicated earlier that eight schools within Kalamazoo County were represented in this study. However, information such as grade point averages and standardized test scores were not available for subjects attending schools outside of the jurisdiction of Kalamazoo Public Schools. Therefore, it was impossible to fully analyze the data. However, an analysis will be made using these subjects' literacy scores and awareness inventory scores.

Data Analysis

The Pearson Product Moment Correlation was used to determine the relationship between subject's literacy scores, MEAP scores and GPA, and to determine the correlation between subject's literacy scores and their awareness level. Descriptive statistics were also used to analyze the data. The data were used to answer the following questions.

1. Do secondary education students enrolled in vocational education programs possess levels of basic literacy skills that will assist them in obtaining entry level employment?

2. Do students have an accurate awareness of what skills are needed for entry level employment, and what employers seek in their employees?

3. Is there a relationship between student's literacy scores and their self-awareness rating scores?

4. Is there a relationship between parent's educational background or their beliefs about education and the level of literacy
demonstrated by the students?

5. Is there agreement between student responses to their awareness inventory and the responses of their teachers to the inventory?
CHAPTER IV

RESULTS AND DATA ANALYSIS

Introduction

This chapter summarizes the findings of the study and describes the demographic characteristics of the participants in the study.

Demographics of Study Sample

The study consisted of a total of 137 high school students (representing eight area schools) enrolled in vocational education classes within the Kalamazoo Public School system, located within Kalamazoo County. The subjects' grade levels ranged from 10th through 12th grades; there was one 10th grade student, 59 11th grade students, and 77 12th grade students. There were 48 African-Americans, 1 Asian American, 83 Caucasians, 2 Hispanic-Americans, 1 Native-American, and 2 subjects that identified themselves as "other," not specifically stating their ethnic background. Sixty-nine of the subjects were male, and 68 were female.

Results

There were four hypotheses for this study. The conceptual hypothesis for the study states that there is a relationship between vocational education students who score high on the literacy
Hypothesis Testing

The first hypothesis stated that vocational educational students scoring high on the literacy assessment would score high on the awareness inventory and students scoring low on the literacy assessment would score low on the awareness inventory. To obtain literacy data for each subject, the TALS math and reading literacy assessments were administered, and to determine individual subject's awareness levels study participants completed a researcher-constructed awareness inventory. To discover whether or not a relationship existed between subject's math literacy levels and their awareness level, the Pearson Product-Moment Correlation Coefficient (Pearson R) (Isaac & Michael, 1983) test was used for the data analysis. Pearson R was also used to investigate whether there was a relationship between subject's reading literacy levels and their awareness level.

As can be seen in Table 1, a relationship did not exist between subjects' math literacy levels and awareness, nor was there a relationship between reading literacy levels and awareness.

Inspection of Table 1 shows that vocational education students do possess levels of basic literacy that will assist them in obtaining entry level employment. The mean score for subjects' math literacy test was 297 and the mean score for the reading literacy test was 294. These scores correspond to level three of the Educational Testing Services chart (see Appendix C) which implies that students
have literacy skills sufficient for entry-level employment. For example, positions in clerical, sales, craft, and several others are listed as possibilities for individuals scoring in range three. The scale ranges from 225 to 500. Subjects' also demonstrated an awareness of what skills are needed for entry level employment, as well as what employers seeks in employees. The mean score for subjects' awareness inventory was 57 which translates into a percentage score of 86.

Table 1
Correlations Between Math/Reading Literacy Scores and Awareness Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lit-math/Awareness</td>
<td>137</td>
<td>297</td>
<td>0.164</td>
<td>0.074</td>
</tr>
<tr>
<td>Lit-read/Awareness</td>
<td>135</td>
<td>294</td>
<td>0.179</td>
<td>0.052</td>
</tr>
<tr>
<td>Awareness</td>
<td>118</td>
<td>57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Therefore, the first research hypothesis is not supported using the .05 level of significance in that the probability value (p value) is greater than .05. This finding approached statistical significance (p values of .074, .052). Utilizing .10 as the level of significance would indicate that a correlation does exist between both subjects' math scores, reading scores, and their awareness scores; even so, the correlations would account for only a small amount of variance.

Pearson R was also used to correlate the relationship between
subjects' literacy scores and their self-reported awareness rating for question 19 on the awareness inventory (see Appendix A). The results reported in Table 2 illustrate that there is a relationship at the .05 level of significance between subjects' literacy scores and their responses about how well they believed they performed on the Test of Applied Literacy Skills. The findings suggest that subjects are aware of their own basic literacy skill levels.

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lit Math/Ques. 19</td>
<td>137</td>
<td>294</td>
<td>-0.415</td>
<td>0.000</td>
</tr>
<tr>
<td>Lit Read/Ques. 19</td>
<td>137</td>
<td>294</td>
<td>-0.372</td>
<td>0.000</td>
</tr>
</tbody>
</table>

In addition, subjects and teachers were asked to list four classmates and students who they believe would be most successful in getting a good entry level job. Sixty-seven percent of all students responded to this question, and 100% of the teachers responded. The reason for asking this question was to determine whether or not students were "aware" of who their classmates were that had high literacy and the potential of obtaining a good entry level position. The reason for asking each group this question was to determine if there were similarities between the teachers' and subjects' responses. Table 3 below exhibits the percentage of agreement between subjects and teachers. As can be observed in the table, the
percentage of agreement between subjects and teachers was small in most cases. Agreements were calculated by determining the number of and percentage of subjects who agreed or identified the same one to four classmates that were also identified by their teachers. For example (refer to Table 3), in class number 2, there were 8 subjects out of 10, or 80% that agreed with their teacher that student number 4 would be successful in obtaining a good entry-level position.

Although students identified classmates with medium to high literacy scores, they did not always select those students identified by their teachers. This may have occurred for several reasons, one being that students believe that classmates with average grades would be successful in obtaining a good entry-level position. In addition, students may have identified only classmates in which they had a relationship or communicated with on a regular basis. The classmates identified had literacy scores which ranged from 245-365. According to the TALS chart (see Appendix C) a score of 245 does not equip someone to obtain a "good" entry-level position. This implies that some students were not cognizant of who their classmates were that scored high on the literacy assessments, and/or, perhaps they lacked the awareness or comprehension as to what levels of literacy are required for employment. In either case, literacy training and education would be appropriate for developing an understanding and awareness of workplace literacy demands. Awareness levels of subjects is important, and could potentially effect a difference in the level of success achieved in secondary education as well as the workplace. Subjects that distinguished between classmates with high
and low literacy scores appear to have insight as to the literacy skills important for the workplace. They also recognized that these students conceivably have the opportunity to be employed in good entry-level positions.

Table 3
Number of Subjects and Percentage of Agreement Between Subjects and Teachers

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Student 1</th>
<th>Student 2</th>
<th>Student 3</th>
<th>Student 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14</td>
<td>1/7</td>
<td>1/7</td>
<td>2/14</td>
<td>2/14</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>2/20</td>
<td>2/20</td>
<td>5/50</td>
<td>8/80</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>2/16</td>
<td>3/25</td>
<td>5/41</td>
<td>8/66</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>2/12</td>
<td>4/25</td>
<td>4/25</td>
<td>5/31</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>2/25</td>
<td>3/37</td>
<td>3/37</td>
<td>5/62</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>3/25</td>
<td>3/25</td>
<td>3/25</td>
<td>*</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>2/22</td>
<td>4/44</td>
<td>6/66</td>
<td>7/77</td>
</tr>
<tr>
<td>8</td>
<td>17</td>
<td>1/5</td>
<td>2/11</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
<td>1/6</td>
<td>4/26</td>
<td>4/26</td>
<td>*</td>
</tr>
<tr>
<td>10</td>
<td>14</td>
<td>1/7</td>
<td>1/7</td>
<td>4/28</td>
<td>5/35</td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>1/10</td>
<td>1/10</td>
<td>2/20</td>
<td>4/40</td>
</tr>
</tbody>
</table>

* = no agreement  
*N = the number of subjects enrolled per class  
*Class = the total number of classes included in the study
Hypothesis 2

The second hypothesis states that there is a relationship between vocational education students' literacy assessment scores, standardized test scores, and cumulative GPA. Each subject's standardized test scores for the Michigan Educational Assessment Program and the Iowa Test of Basic Skills (MEAP and IOWA) and GPAs were retrieved from school records. Each standardized test included both a mathematics and reading assessment. The results in Table 4 suggest that there is a statistically significant correlation at the .05 level of significance between both the MEAP, IOWA reading test, and the literacy reading test. There is also a correlation at the .05 level between the MEAP, IOWA math test, and the math literacy test. However, as evidenced by the results, there is no correlation between subjects' GPAs and their math literacy assessment scores, but there is a positive correlation between GPAs and the reading literacy assessment scores (see Table 5).

Table 4

Pearson R Results for Math/Reading Literacy Assessment Scores and Standardized Test Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meap Read/Lit Read</td>
<td>43</td>
<td>1.67</td>
<td>0.376</td>
<td>0.012</td>
</tr>
<tr>
<td>Meap Math/Lit Math</td>
<td>43</td>
<td>35.60</td>
<td>0.459</td>
<td>0.001</td>
</tr>
<tr>
<td>Iowa Math/Lit Math</td>
<td>88</td>
<td>43.32</td>
<td>0.558</td>
<td>0.000</td>
</tr>
<tr>
<td>Iowa Read/Lit Read</td>
<td>89</td>
<td>39.00</td>
<td>0.552</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Grade point average is not affected by math courses to the extent that it would be affected by other courses where reading is a daily activity over an extended period of time. This may explain why there was not a correlation between GPA and math literacy scores.

Table 5
Pearson R Results for Math, Reading Literacy Assessment Scores and GPA

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA/Math</td>
<td>107</td>
<td>2.16</td>
<td>0.147</td>
<td>0.130</td>
</tr>
<tr>
<td>GPA/Read</td>
<td>107</td>
<td>2.16</td>
<td>0.301</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Hypothesis 3

The third hypothesis for this study was that there would be a relationship between literacy scores for vocational education students whose parents believe that education is important and vocational education students whose parents do not believe education is important. The data for this hypothesis was gathered through each subject's responses to questions on the awareness inventory. The Pearson R was used for analyzing the data. The results are not statistically significant since the probability value of 0.868 is greater than .05 (see Table 6). Therefore, the research hypothesis that there is a relationship between the two groups of subjects is not supported. Based on these findings, neither parents' educational backgrounds nor their beliefs about education have a relationship to
the level of literacy demonstrated by subjects.

Table 6
Pearson R Results for Parents' Belief in the Importance of a High School and College Education

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Par/Imp/Math</td>
<td>132</td>
<td>297</td>
<td>-0.014</td>
<td>0.868</td>
</tr>
<tr>
<td>Par/Imp/Reading</td>
<td>132</td>
<td>294</td>
<td>0.101</td>
<td>0.248</td>
</tr>
</tbody>
</table>

Hypothesis 4

The fourth hypothesis states there is a relationship between literacy scores for vocational education students who believe education is important and vocational education students who do not believe education is important. The results demonstrate a lack of support for this hypothesis; the probability values are greater than the .05 level of significance as reported in Table 7.

Table 7
Pearson R Results for Students' Beliefs in the Importance of a High School and College Education

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>R</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stu/Imp/Math</td>
<td>132</td>
<td>297</td>
<td>-0.150</td>
<td>0.085</td>
</tr>
<tr>
<td>Stu/Imp/Read</td>
<td>132</td>
<td>294</td>
<td>0.114</td>
<td>0.191</td>
</tr>
</tbody>
</table>
Summary

In this chapter results from the data have been provided. Based on the results it can be concluded that two of the four hypotheses were supported, the remaining hypotheses were not. First, the results suggest that there is a relationship between subjects' literacy levels and their awareness level as it pertains to the literacy skills necessary for obtaining employment. In addition, subjects' performance on standardized instruments (MEAP and IOWA) is related or reflective of their achievement on the literacy assessment. However, there was no indication of the relationship between subjects' GPA and math literacy scores, yet results demonstrated a relationship between subjects' GPA and reading literacy scores. The other two hypotheses were not statistically significant. There is no relationship between literacy scores of subjects' whose parents value education and those whose parents do not; in the same vein, the results also showed no relationship between literacy scores of subjects' who believed education was important, and those who did not believe in the importance of education. The following chapter will provide a summary, discussion about the findings, and recommendations for future studies.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose for this study was to assess literacy levels of high school students enrolled in vocational education programs and to examine these students' awareness as to what literacy skills are necessary for obtaining employment. There were 137 students in grades 10-12 who participated. Each subject was administered the Test of Applied Skills (TALS) literacy instrument which was designed to assess subject's literacy skills, and a self-awareness inventory which was designed to obtain demographic information and to assess each subject's awareness of employer expectations as well as skills necessary for the workplace. Also, each teacher completed a teacher inventory, which allowed the researcher to determine the similarities between subject's and teacher's responses to the one question asked of each group (see Appendix B). Pearson R and descriptive statistics were used for analyzing the data.

The research is disproportionate as it relates to literacy and the juvenile population, since studies pertain to adult literacy. However, several authors (Kirsch & Jungeblut, 1986; Penn, 1991; Corman, 1980) noted the importance of addressing literacy and youth through research. Corman (1980) indicates the need for basic skills being emphasized in vocational education programs, and that it is
also necessary to periodically assess students' levels of competence in basic skills. Also reflected in the National Assessment of Educational Progress (NAEP) study was the fact that a large percentage of young adults (who were subjects in a national study) had difficulty performing several tasks on the Test of Applied Literacy Skills (Kirsch & Jungeblut, 1986). In addition, the NAEP study suggested that home-support variables were important to the literacy practices of subjects included in this study. There is strong support for continued literacy research that is directly related to an adolescent population. Therefore, this study was designed specifically to investigate the basic skill or literacy levels of high school students enrolled in vocational education classes and to determine their readiness to pursue employment immediately upon graduation.

**Discussion**

The results of this study tend to suggest that: (a) there was a relationship between subjects' literacy scores and their awareness inventory scores; (b) there was a relationship between subjects' standardized test scores and the literacy assessment scores, and between GPA and reading literacy, but not between GPA and math literacy scores; (c) there was no relationship between literacy scores for subjects' whose parents believe education is important and those whose parents do not believe education is important; and (d) there was no relationship between literacy scores for subjects who believe education is important and those subjects who do not believe education is important.
Hypothesis 1 stated that vocational education students scoring high on the literacy assessment would score high on the awareness inventory and students scoring low on the literacy assessment would score low on the awareness inventory. The first hypothesis was supported at the .10 level of significance. The findings support the researcher's premise regarding the correlation between subjects' literacy scores and awareness scores. Therefore, with a considerable degree of confidence, the results indicate that subjects' do possess the knowledge of basic skills needed to obtain an entry level position. The mean scores for math and reading literacy assessments were 297 and 294 respectively, and based on the TALS chart (see Appendix C) these scores fall within the level three range. The chart demonstrates the close relation of scores to the kinds of literacy tasks encountered in various jobs in the workplace. The results also indicate that subjects are knowledgeable as to what skills employers deem necessary for employment. The mean score for awareness was 57, which translates into a percentage score of approximately 86% on the awareness inventory. Subjects' level of awareness may be directly influenced by the fact that 28% of the subjects have had a co-op (on-the-job experience), apprenticeship, or an externship experience, and at least 93% of those participating in this study have had some type of previous work experience. Although the number of students with no work or apprenticeship experience is small, there is the probability that this group of students may not know what literacy skills are expected by employers.

Also the question (see Appendix B) that both the subjects and
teachers were asked to respond to yielded very little information. It appears that the percentage of agreement was quite small for the majority of the classes. If this study were to be replicated, this researcher believes eliminating the question asked of subjects and teachers (asking subjects and teachers to list four names of students or classmates they believe would be successful in obtaining a good entry level position) would be appropriate. Information from this question does not impact or reflect students' awareness or literacy levels. It does indicate that students are aware of those who have performed well academically, and aware of those who have potential to be successful upon graduation.

As expected, for the second hypothesis (which states there is a relationship between vocational education student's literacy assessment scores, standardized test scores, and cumulative GPA), there was a relationship between subjects' standardized test scores, and both literacy assessments; and there was also a relationship between GPA and literacy reading scores. However, unexpectedly, there was not a relationship between GPA and math literacy scores. Throughout high school a GPA is based on grades earned by students. The content of the majority of classes taken during this time requires a great deal of reading, so without question, students' grades are reflective of courses in which reading skills are essential. Most classes, if not all, require reading, whereas math skills are important, but not required to be successful in classes such as, English, history, science, or language. Reading occurs in all classes over the duration of a 4-year period. On the other hand, students are not
required to take math after 10th grade. Grade point average is not affected by math courses to the extent that it would be affected by courses where reading is a daily activity over an extended period of time. This may explain why there was not a correlation between GPA and math literacy skills.

The third hypothesis relating to parents' views about the importance of education was not supported. The third hypothesis for this study was that there was a relationship between literacy scores for vocational education students whose parents believe that education is important and vocational education students whose parents do not believe education is important. According to Kirsch and Jungeblut (1991) parents' educational backgrounds are significantly related to the type and amount of education and to literacy practices reported by subjects of their study. The authors believe these home support variables explained the differences in literacy skill levels between their subjects. Ironically, in this study the results suggested that there was no relationship between literacy scores for students whose parents believed in the importance of education, and those students whose parents do not believe education is important. Without question this researcher continues to believe that parents' educational beliefs and backgrounds are meaningful and will frequently influence literacy practices of their offspring. Possibly the awareness inventory completed by subjects in this study did not request enough information regarding parents' educational backgrounds, thus providing a misleading finding.

Hypothesis 4 stated that there would be a relationship between
literacy scores for vocational education students who believe education is important and vocational education students who do not believe education is important. Unexpectedly, results for the fourth hypothesis also showed no relationship in literacy scores for students who believe education is important and those who do not.

Eighty-six percent of the subjects reported that high school is very important or important, and 85% believe college to be very important or important. Society has taught us that education is vital to one's success, thus, parents, teachers, etc., have instilled the importance of an education, and students will often regurgitate what they have heard because it is accepted as the norm, even though their belief system at that time may not be in agreement. This may be the case for this situation. Some of the subjects' academic measures and literacy scores, as observed in this study, seem to be contrary to their beliefs of the importance of education as indicated on the inventories. In essence, this researcher believes that there is a relationship in the literacy levels of students who believe education is important and those who do not. However, additional research that includes interviews may be appropriate for obtaining a better profile of subjects included in future studies.

Limitations

This research study was designed to assess the literacy levels of students enrolled in vocational education classes. To this end the objective was accomplished. However, it was not possible to select only vocationally tracked students, in that vocation education
classes are open to all students interested in enrolling in vocation courses. Conducting literacy research, and utilizing only students that pursue a vocational program, would provide a more accurate literacy profile for which vocational technical education staff could prescribe an individualized plan of study to assist in improving students' literacy levels. The goal would be to ensure better basic skills with the expectation of leading to increased employment opportunities.

It is a further belief that the design of the study was appropriate, yet, use of the self-awareness instrument alone (as a means of gathering data about the possible relationship between parents' beliefs regarding the importance of education), did not disclose enough information regarding parents' literacy behaviors. As mentioned above, modification of the awareness instrument along with implementation of individual interviews may be necessary for strengthening the research design; and obtaining valuable information regarding home-support variables that may or may not affect students' literacy performance.

Future Research Recommendations

Throughout the literature, the severity of the literacy problem was emphasized. As long as the economic situation of the United States has the potential to be affected by its human resources (employees), the literacy dilemma will continue to be at the forefront of the problems afflicting the American industry. According to Kirsch, Jungeblut, and Campbell (1992) finding solutions to improve
current literacy levels is necessary to ensure individual opportunity, to increase productivity, and to strengthen the United States' competitiveness in a global society. Hence, continued literacy research is imperative, especially as it relates to the adolescent population, particularly vocational education students.

Students who pursue vocational education as a course of study often times seek employment upon graduation, employment that will enable self-reliance. Because vocational education students may not plan to attain a post-secondary education, it becomes even more meaningful to provide a vocational education program which incorporates literacy skill building into the design of the curriculum.

The potential for future literacy research is vast, and below are several recommendations for future research.

1. Conduct a comparative study investigating differences between vocational education students who receive literacy training prior to placement in co-op (apprenticeship) settings, and those who were assigned a co-op without prior literacy training.

2. Conduct follow-up studies of vocational education students who graduated and began working immediately without further training, to ascertain whether or not literacy effected their ability to obtain a "good" entry level position.

3. Conduct a study which assesses vocational education students' literacy levels upon entrance into the vocational education program, also identifying the literacy levels and behaviors of their parents. Based on the information, revise portions of the curriculum to include literacy training for those students scoring within a
certain range. Upon conclusion of high school, do a comparative analysis of those who received training and those who did not.

4. Design a vocational education curriculum which incorporates employment requirements (including literacy) and components of a traditional vocational education curriculum. Then conduct a study which analyzes students' performance in both a traditional curriculum, and students' performance in the modified curriculum.

Success for the vocationally tracked student will mean using a more proactive approach to preparing them for the workplace, and this can be done. It will require a commitment from students, the school system, and potential employers. The ultimate goal is to produce graduates who can function successfully in a given career, and in society.
Appendix A

Student Profile Awareness Inventory
STUDENT PROFILE
AWARENESS INVENTORY

Participant Number: ________________________________

Sex: Male____  Female____

Grade: _____9th _____10th _____11th _____12th

School: __________________________________________________________________

Race:
_____ African-American  _____ Asian-American  _____ Caucasian
_____ Hispanic  _____ Native-American  _____ Other
(specify) _______________________

Vocational program of interest: ____________________________________________

1. Which program are you earning or have earned credit through?
   _____ Co-op
   _____ Apprenticeship
   _____ Externship
   _____ None of the above

2. Have you ever worked? (please check all that apply)
   _____ summer job  _____ volunteer job  _____ after school job  _____ never worked

3. What would you like to do after you graduate from high school?
   (Check all that apply)
   _____ Go to college full time
   _____ Go to college part time
   _____ Work full time
   _____ Work part time
   _____ Attend a vocational/training program

4. Please check your parents' highest level of education.
   _____ Some high school
   _____ Graduated from high school
   _____ Some college
   _____ Graduate from college
   _____ Vocational training school
   _____ G.E.D./Adult Education
   _____ Other (please specify) ___________________________
5. Do your parents want you to go to college?
   ______ Yes ______ No

6. How important do your parents think high school is for you?
   Very important ______ Important ______ Somewhat important ______ Not very important ______ Not important at all

7. How important do your parents think college is for you?
   Very important ______ Important ______ Somewhat important ______ Not very important ______ Not important at all

8. How important is high school to you?
   Very important ______ Important ______ Somewhat important ______ Not very important ______ Not important at all

9. How important is college to you?
   Very important ______ Important ______ Somewhat important ______ Not very important ______ Not important at all

10. How much do you like your vocational education classes?
    ______ very much ______ not very much ______ not at all

11. How prepared are you in the basic skill areas?
    Reading skills ______ very well ______ fair ______ poor
    Writing skills ______ very well ______ fair ______ poor
    Mathematics ______ very well ______ fair ______ poor

12. How do you rank your basic skills in comparison to your classmates?
    Reading skills ______ Upper 33% ______ Middle 33% ______ Lower 33%
    Writing skills ______ Upper 33% ______ Middle 33% ______ Lower 33%
    Mathematical skills ______ Upper 33% ______ Middle 33% ______ Lower 33%

13. How often have you thought about dropping out of school?
    ______ often times ______ sometimes ______ rarely ______ never
14. To prepare yourself for a good entry level job, how important is it that you have good:

- Reading skills
  - Important
  - Somewhat important
  - Not important

- Writing skills
  - Important
  - Somewhat important
  - Not important

- Problem solving skills
  - Important
  - Somewhat important
  - Not important

- Communication skills
  - Important
  - Somewhat important
  - Not important

- Mathematical skills
  - Important
  - Somewhat important
  - Not important

15. Please check the statement you believe to be most true (Check only one).

- With a high school diploma, I will be able to get a good entry level job very easily.
- With a high school diploma, I will have difficulty getting a good entry level job.
- With a high school diploma, I will not be able to get a good entry level job.

16. When you apply for a good entry level job, will employment testing be required?

- most times
- sometimes
- rarely
- never

17. During the first year at an entry level job, with a high school diploma, you can usually earn approximately: (Please check the one you believe is most accurate)

- $55,000 - $60,000
- $45,000 - $50,000
- $35,000 - $40,000
- $25,000 - $30,000
- $15,000 - $20,000
- $5,000 - $10,000
- Less than $5,000

18. Out of all your classmates, list the names of those you believe will be most successful in getting a good entry level job (you can include yourself.)

1. ____________________________ 2. ____________________________
3. ____________________________ 4. ____________________________

19. On the test that you just completed (Test of Applied Literacy Skills), how do you believe you scored?

- Above average
- Average
- Below average
Appendix B

Teacher Inventory
TEACHER INVENTORY

Below is one of the questions that each student is being asked to respond to. It will be interesting to determine if students' responses to this particular question will be related to your responses. Your assistance in completing this inventory will be greatly appreciated. Thank you!!

Please list four names of students you believe will be most successful in obtaining a good entry level position.

a. ______________________ b. ______________________

 c. ______________________ d. ______________________

Please list the characteristics of success that the above students exhibit.

_________________________  __________________________

_________________________  __________________________

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Appendix C

Test of Applied Literacy Skills Chart
Both the U.S. Departments of Labor and Education are using this three-dimensional perspective in their national literacy assessments.

Only the ETS Tests of Applied Literacy Skills offer comparable results.
Appendix D

Approval Letter From the Human Subjects Institutional Review Board
Date: November 25, 1992
To: Toni Woolfors-Barnes
From: M. Michele Burnette, Chair
Re: HSIRB Project Number: 92-11-19

This letter will serve as confirmation that your research protocol, "An assessment of vocational education students' literacy levels and awareness of employer expectations" has been approved under the exempt category of review by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application.

You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

xc: Brinkerhoff, Ed. Leadership

Approval Termination: November 25, 1993
Appendix E

Subjects' Response Rates to Awareness Inventory
STUDENT PROFILE
AWARENESS INVENTORY

Participant Number:_________________________________________

Sex: Male 69  Female 68

Grade:  ____9th  ____10th  ____59th  ____11th  ____77th  ____12th

School: ______________________________________________________

Race:

48 African-American  1 Asian-American  83 Caucasian
2 Hispanic  1 Native-American  2 Other
(specify)_________________________

Vocational program of interest:_____________________________________

1. Which program are you earning or have earned credit through?

   22% Co-op
   4% Apprenticeship
   2% Externship
   87% None of the above

2. Have you ever worked? (please check all that apply) 93%

   ____summer job  ____volunteer job  ____after school job  ____never worked

3. What would you like to do after you graduate from high school?
   (Check all that apply)

   ____Go to college full time  64%
   ____Go to college part time  51%
   ____Work full time  87%
   ____Work part time  53.4%
   ____Attend a vocational/training program

4. Please check your parents' highest level of education.

   ____Some high school  0.87
   ____Graduated from high school  11.8
   ____Some college  27.6
   ____Graduate from college  25.2
   ____Vocational training school  27.6
   ____G.E.D./Adult Education  2.4
   ____Other (please specify)  3.9
5. Do your parents want you to go to college?
87.7 Yes  7.7 No

6. How important do your parents think high school is for you?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Very</th>
<th>Important</th>
<th>Somewhat</th>
<th>Not very important</th>
<th>Not important at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>87.1</td>
<td>10.6</td>
<td>2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. How important do your parents think college is for you?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Very</th>
<th>Important</th>
<th>Somewhat</th>
<th>Not very</th>
<th>Not important at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.4</td>
<td>28.8</td>
<td>7.6</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. How important is high school to you?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Very</th>
<th>Important</th>
<th>Somewhat</th>
<th>Not very</th>
<th>Not important at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>59.8</td>
<td>29.5</td>
<td>9.8</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. How important is college to you?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Very</th>
<th>Important</th>
<th>Somewhat</th>
<th>Not very</th>
<th>Not important at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>56.8</td>
<td>29.5</td>
<td>10.6</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. How much do you like your vocational education classes?

<table>
<thead>
<tr>
<th>Likeness</th>
<th>Very much</th>
<th>Not very much</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>82.9</td>
<td>15.5</td>
<td>1.6</td>
<td></td>
</tr>
</tbody>
</table>

11. How prepared are you in the basic skill areas?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Reading</th>
<th>Writing</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading skills</td>
<td>55.4</td>
<td>45.5</td>
<td>46.9</td>
</tr>
<tr>
<td>Writing skills</td>
<td>40.8</td>
<td>50.8</td>
<td>45.4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>43.8</td>
<td>50.8</td>
<td>47.7</td>
</tr>
</tbody>
</table>

12. How do you rank your basic skills in comparison to your classmates?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Reading</th>
<th>Writing</th>
<th>Mathematical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading skills</td>
<td>51.2 Upper 33%</td>
<td>43.4 Middle 33%</td>
<td>5.4 Lower 33%</td>
</tr>
<tr>
<td>Writing skills</td>
<td>46.1 Upper 33%</td>
<td>50.8 Middle 33%</td>
<td>3.1 Lower 33%</td>
</tr>
<tr>
<td>Mathematical skills</td>
<td>40.6 Upper 33%</td>
<td>47.7 Middle 33%</td>
<td>11.7 Lower 33%</td>
</tr>
</tbody>
</table>

13. How often have you thought about dropping out of school?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Often times</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.8</td>
<td>15.2</td>
<td>16.7</td>
<td>61.4</td>
<td></td>
</tr>
</tbody>
</table>
14. To prepare yourself for a good entry level job, how important is it that you have good:

<table>
<thead>
<tr>
<th>Skill</th>
<th>Important</th>
<th>Somewhat important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading skills</td>
<td>86.2</td>
<td>13.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Writing skills</td>
<td>80</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Problem solving</td>
<td>96.2</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Communication skills</td>
<td>94.6</td>
<td>5.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Mathematical skills</td>
<td>83.1</td>
<td>16.2</td>
<td>0.8</td>
</tr>
</tbody>
</table>

15. Please check the statement you believe to be most true (Check only one).

- 16.4 With a high school diploma, I will be able to get a good entry level job very easily.
- 60.2 With a high school diploma, I will have difficulty getting a good entry level job.
- 23.4 With a high school diploma, I will not be able to get a good entry level job.

16. When you apply for a good entry level job, will employment testing be required?

- 54.7 most times
- 40.6 sometimes
- 3.9 rarely
- 0.8 never

17. During the first year at an entry level job, with a high school diploma, you can usually earn approximately: (Please check the one you believe is most accurate)

<table>
<thead>
<tr>
<th>Salary Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>$55,000 - $60,000</td>
<td>31.2</td>
</tr>
<tr>
<td>$45,000 - $50,000</td>
<td>35.2</td>
</tr>
<tr>
<td>$35,000 - $40,000</td>
<td>16.0</td>
</tr>
<tr>
<td>Less than $5,000</td>
<td>0.8</td>
</tr>
</tbody>
</table>

18. Out of all your classmates, list the names of those you believe will be most successful in getting a good entry level job (you can include yourself.)

1. ____________________________ 2. ____________________________
3. ____________________________ 4. ____________________________

19. On the test that you just completed (Test of Applied Literacy Skills), how do you believe you scored?

- 24.8 Above average
- 70.4 Average
- 4.8 Below average
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