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The Relationship between Workplace Readiness Skills and Grade Point Averages as Predictors for Employment

A Research Paper

Presented to the Graduate Faculty

of the Department of Occupational and Technical Studies

Old Dominion University

In Partial Fulfillment

of the Requirements for the Degree of Master of Science

in Occupational and Technical Studies

By

John B. Nelson

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APPROVAL PAGE

This research paper was prepared by John B. Nelson under the direction of Dr. John Ritz, in OTED 636, Problems in Occupational and Technical Studies. It is submitted in partial fulfillment of the requirements for the Degree of Master of Science in Occupational and Technical Studies.

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Advisor and Graduate Program Director

Date

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CHAPTER I

INTRODUCTION

Every school year brings challenges to educators to support and train students' for the dynamically changing workplace. The challenge is to prepare high school students in workplace skills that will enable the student to meet and keep up with the rapidly accelerating pace of the work environment. Questions were asked if work place readiness skills alone are an accurate predictor for employment. These questions have concerned educators and employers throughout Virginia since the early 1980's.

Where are employers and educators going to find another predictor for employment? One area may be the students' academic grade point averages. Over the years college bound students have been required to meet certain academic grade point averages for admission into the undergraduate institutions. These institutions rely heavily on a student's grade point average in predicting future academic performance. Presently, students are not required to include their academic grade point averages when writing their resumes for employment. Employers only require that a student identify their academic degree and college achievements.

With such a strong emphasis on student grade point averages for college admission, employers could also use them as another predictor for employment. This combination of workplace readiness skills and the student's grade point average could aid employers in determining if the student will be able to keep up with the ever changing work environment.

STATEMENT OF THE PROBLEM

The problem of this study was to determine the relationship between workplace readiness skills test scores of students' with their current year grade point average in the Information Technology and Telecommunication ATC courses as a predictor of successful employment.

RESEARCH GOALS

The following hypothesis was established to guide this study:

H_1: There is a correlation between Career and Technical Education students' Workplace Readiness Skills scores and their accumulated GPA.

BACKGROUND AND SIGNIFICANCE

In the past twenty years, business leaders, educators, and political leaders have realized that general academic education would not be able to provide the skills needed for most careers. During the 1990's, legislation was created that addressed the changing workplace, especially in the areas of international competition and new technologies. The legislation provided funds and services through the Federal government. In 1991, the National Literacy Act was enacted to mandate the required basic skills for work. The Education Council Act was also enacted in 1991. The act established the National Education Commission on Time and Learning and the National Council on Education Standards and Testing. The National Education Commission on Time and Learning provided a report on time and learning within the classroom. The National Council on Education Standards and Testing provided advice on the feasibility for developing

national standards and conducting national testing. In 1994, the Improving America's Schools Act reauthorized the Elementary and Secondary Education Act of 1965. This act required that all students obtain high standards that are tied to professional development, such as individual and team learning, writing across subject areas, and active applied learning. In 1994, President Clinton signed the Goals 2000: Educate America Act. This act brought a systematic change to education. It addressed how schools measured student achievement, improved preschool programs, and addressed job training. Additionally, the School-to-Work Opportunities Act was signed in 1994. This act provided money for both work-based learning and school-based learning. Further, the following acts included language for workplace readiness skills: The Carl D. Perkins Vocational and Applied Technical Education Act of 1984, the School-to-Work Opportunities Act, and Goals 2000: Educate America Act.

The Carl D. Perkins Vocational–Technical Education Act Amendment of 1998 (Public Law 105–332) was signed into law on October 31, 1998. This legislation restructures and reforms programs previously authorized by the Carl D. Perkins Vocational and Applied Technology Education Act. Workplace skills defined in Sec. 3. Definitions under (5) Career and Technical Education (B) include competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, occupation-specific skills, and knowledge of all aspects of an industry, including entrepreneurial opportunities.

The School-to-Work Opportunities Act of 1994 (Public Law 103-239) was signed into law on May 4, 1994. This legislation established a national framework for the development of School-to-Work opportunities systems in the United States and for other

purposes. Workplace skills defined in Sec. 103. Work-Based Learning Component (a). (4). Instruction in general workplace competencies, including instruction and activities related to developing positive work attitudes, employability, and group participation skills.

The Goals 2000: Educate America Act, Pub. L. 103-227, became law on March 31, 1994. This bill is set up to provide a framework for education reform. The act encourages the development and adoption of a voluntary national system of skill standards and assessment of workplace skills. The 4th National Education Goal is to establish valid, reliable, and fair mechanisms for assisting in the development and certification of high-quality, internationally competitive content and student performance standards.

During the 1990's, the Weldon Cooper Center at the University of Virginia, published a report called "Changing Job Skills in Virginia: Employers Speak" (1997). The Center interviewed 564 employers across Virginia about the skills they were required for in an entry-level employee. Consequently, this study became the foundation for the Virginia Workplace Readiness Skills that are to be taught within public schools today. Additionally, the students' depth of knowledge in reference to workplace readiness skills is tested via a pre- and post-assessment by the National Occupational Competency Testing Institute (NOCTI).

In continuing education, a student's academic record, expressed in grade point averages, is used for college admission. The GPA is an indicator of a student's academic performance during high school and is the single best predictor for academic performance in college. In the workforce, John Taylor, Interactive Corporation states that, "a young

applicant's G.P.A. is the best single predictor of job performance in the first few years of employment" (Koppel, 2006). Taylor owns 60 businesses around the world and he requires all of them to use the G.P.A. as an indicator of an applicant's work ethic and intelligence. Taylor also mentioned that it is common practice for many employers to emphasize an applicants' G.P.A. when hiring.

There have been many studies conducted to identify what employers have identified as essential workplace skills. However, there have been no studies that have attempted to determine if there is a relationship between workplace skill scores on assessments such as NOCTI and a student's grade point average. If the hypothesis of this study proves to be true and valid, the results would be of tremendous value to future educators, employees, and employers.

LIMITATIONS

The limitations of this study were identified as follows:

1. The population of this study was limited to three classes at the Advanced Technology Center in Virginia Beach, Virginia. The classes are Computer Network Administration, Cisco Certified Network Academy, and Telecommunications.
2. The study was limited to students who have taken the NOCTI assessment for workplace readiness skills.
3. The study was limited to comparisons of the workplace readiness skills that utilized NOCTI assessment scores and the student's grade point average.
4. Grade point averages used were those of student's current school year.

ASSUMPTIONS

The following assumptions were made concerning this study:

1. Students with higher Grade Point Averages scored higher on the Workplace Readiness NOCTI exams.
2. Employers will continue to evaluate work-place readiness skills during a student's internship.
3. The NOCTI assessment will continue to be given to Advanced Technology Center students.
4. Workplace Readiness Skills provide a student with the soft skills needed for employment.

PROCEDURES

The study of Advanced Technology Center (ATC) students was conducted to determine the relationship between workplace readiness skills scores and grade point averages. Procedures utilized in the research study included obtaining students' workplace readiness scores from the school systems NOCTI assessments and obtaining students' school grade point averages. A comparison of the two scores will be made using Pearson's r to determine if a significant relationship exists.

DEFINITION OF TERMS

The following terms were relevant to this study:

1. Grade Point Average, GPA- the cumulative average, based on a 4 point scale, of all academic courses taken.

2. Workplace Readiness Skills, WPRS- the essential employment skills that are required to successfully participate in the work force.
3. National Occupational Competency Testing Institute, NOCTI- provider of occupational competency assessment products and services to secondary and post-secondary educational institutions.
4. Relationship- This term is defined as a specific connection between objects, entities, or concepts.
5. Advanced Technology Center- ATC, a technical education facility for Virginia Beach High School and Tidewater Community College students.

OVERVIEW OF CHAPTERS

Chapter I introduced the problem of the study which was to determine the correlation between WPRS and GPA as predictors for successful employment. The history identified the legislation which introduced and supported work-place readiness skills. John Taylor, Interactive Corp., indicated that a student's GPA is a strong predictor of future work performance. The study was limited by students who attended the ATC and had taken the NOCTI assessment for WPRS.

Chapter II provides a review of the literature relating to the correlation between work-place readiness skills and grade point averages as predictors for employment. Chapter III provides the methods and procedures used during the research. Chapter IV presents the findings of the study. Chapter V contains the summary, conclusions and recommendations of the study.

CHAPTER II

REVIEW OF LITERATURE

A review of literature available on the importance of workplace skills and their correlation with grade point averages in support of successful employment is presented in this chapter. The information is based on the research goal and will look at the work-place readiness skills and GPAs as predictors of employment.

THE HISTORY AND EVOLUTION OF HARD AND SOFT SKILLS

During the early 1960s, the Ministry of Technology performed an operative skills inquiry of the crafts within England. The results showed that in order to be employed individuals required a specialized trade. Because workers had specialized knowledge, very few were required to learn additional workplace skills. A few jobs including maintenance tradesman and craftsman necessitated knowledge of a limited number of skills beyond the trade (Jeans, 1961). The maintenance tradesmen were required to have the ability to recognize faults and failures and to diagnose causes to these problems. The craftsman were required to have the ability to communicate 'know how' to an apprentice.

During the 1970s, a research report was published explaining the career development needs of nine year olds. Miller's (1977) assessment and conclusions declared that for a nine year old to be successful in his or her career, teachers would have to include six skill objectives within their lessons. The necessary skills were identified as numerical, communication, manual-perceptual, interpersonal, effective work habits, and a positive attitude toward work performance. It was during this time frame that workplace skills were introduced to the student through the learning process.

During the 1990s, innovative methods brought efficiency and quality to production and service delivery systems, facilitating a much deeper meaning and understanding of workplace skills (Carnevale, Gainer, & Meltzer, 1991). During this time frame basic skills such as reading, writing, and computation were required by all employers to assure maintaining the efficiency and quality of an organization. While the United States was requiring its workers to have basic skill sets, the British vocational system was also being transformed. Its general national vocational qualifications included core skills such as communication, problem solving, application of numbers, and use of technology. In both the United States and England, the workplace required the worker to obtain new knowledge and skills.

HARD AND SOFT SKILLS IN THE 21ST CENTURY

The Secretary's Commission on Achieving Necessary Skills (SCANS) was tasked by the Secretary of the Department of Labor to examine if students were capable of meeting the demands of the workplace. The SCANS report was in support of President Bush's new education strategy, "America 2000." The commission was requested "to identify which skills are required for employment." It outlined five competencies as well as a foundation of skills and personal qualities that were needed for solid job performance. The competencies identified were resources, interpersonal skills, information, systems, and technologies. The foundation of skills consisted of basic skills, thinking skills, and personal qualities. They were labeled as "Workplace Know-How." Table 1 describes each competency and foundation (SCANS, 1991, p. 5).

Table 1. Workplace Know-Hows

COMPETENCIES
Resources - allocating time, money, materials, space, and staff
Interpersonal Skills - working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds
Information - acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information
Systems - understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems
Technology - selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies
FOUNDATIONS
Basic Skills - reading, writing, arithmetic and mathematics, speaking, and listening
Thinking Skills - thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning
Personal Qualities- individual responsibility, self-esteem, sociability, self-management, and integrity

The SCANS report indicated that both the employer and employee needed to develop competencies and foundations in order to prosper. The commission also believed that these competencies were applicable to the common worker as well as the executive.

VIRGINIA'S CHANGING WORKPLACE

The Weldon Cooper Center for Public Service, University of Virginia, performed a study called, "Virginia's Changing Workplace" (1997). The center surveyed 564 employers across the state. The survey focused on what skills are required by employers for an entry level position without a four year degree. Results indicated that employers required the employee have basic technical skills and personal qualifications. Employers stated that these skills are essential and allow employees to fully participate in the workplace. The identified skills were divided into two skill groups, hard and soft. Hard skills consisted of reading, mathematics, writing, speaking, computer literacy, reasoning, problem-solving, decision-making, and understanding the big picture. They were primarily taught within a school environment. The second skill set consisted of work ethic, positive attitude, independence, initiative, and self-sufficiency. These skills were usually taught at home. The results of the Virginia Changing Workplace study became the foundation for the Virginia Workplace Readiness Skills curriculum. The development of the curriculum was a joint venture between Virginia Beach City Public Schools, Virginia CTE Resource Center, and Opportunity, Inc. The curriculum was published in May 2006. The curriculum brings the real world into the classroom through scenarios and activities which help students understand the skills that are required in the workplace. With such an understanding students were able to build a successful skill set consisting of Virginia's 13 Workplace Readiness Skills (Opportunity Inc., 2006). Table 2 describes Virginia's 13 Workplace Readiness Skills (Opportunity Inc., 2006).

Table 2. Workplace Readiness Skills

Workplace Readiness Skill	**Definition**
Demonstrate reading skills on a level required for employment in a chosen career field.	Demonstration of reading skills includes: ▪ interpreting technical and general interest materials commonly used in this field ▪ applying understanding of the material to job operations.
Demonstrate math skills on a level required for employment in a chosen career field.	Demonstration of math skills includes: ▪ performing math operations using whole numbers, fractions, percentages ▪ using statistics (percentages, averages, medians, and standard deviations) to monitor processes and quality of performance ▪ using mathematical reasoning to solve word problems ▪ using algebra-based formulas ▪ performing job-specific math operations.
Demonstrate writing skills on a level required for employment in a chosen career field.	Demonstration of writing skills includes: ▪ Define the purpose. ▪ Determine the audience. ▪ Gather information. ▪ Plan the format/layout. ▪ Write a first draft. ▪ Edit and revise as necessary to ensure that the document is complete, clear, concise, correct, and considerate of the reader.
Demonstrate speaking and listening skills on a level required for employment in a chosen career field.	Demonstration of speaking and listening skills includes: ▪ giving and taking direction or instruction ▪ giving and responding to oral reports or presentations ▪ participating in group or team discussions ▪ engaging in conversation with co-workers, supervisors, and clients ▪ conducting business in person and via electronic means.
Demonstrate computer literacy on a level required for employment in a chosen career	Demonstration of computer literacy includes: ▪ using common software to

field.	accomplish word processing, construction of simple spreadsheets, and keying in and retrieving information from databases ▪ transferring the operating principles of one application to another similar application ▪ using knowledge of computer logic, operating systems, and basic troubleshooting techniques to identify-problems ▪ using special job-specific computer equipment, software, and other technology.
Demonstrate reasoning, problem-solving, and decision-making skills on a level required for employment in a chosen career field.	Demonstration reasoning, problem-solving, and decision-making skills includes: ▪ differentiating among types of problems (e.g., technical, human relations, ethical) ▪ using established methods of problem solving and decision making in both individual and group settings ▪ applying previous learning to situations where problems must be solved or decisions made quickly ▪ predicting short- and long-term effects of proposed solutions or decisions ▪ testing solutions or decisions to determine effects or to identify related problems.
Demonstrate understanding of the "big picture."	Demonstration of the "big picture" includes: ▪ identifying the company's mission and the individual employee's contribution to that mission ▪ identifying how the company functions within the broad world of business, industry, and service ▪ explaining the rationale behind organizational policies and procedures ▪ explaining the necessity and benefits/disadvantages of organizational change ▪ explaining basic economic concepts.
Demonstrate a strong work ethic.	Demonstration of a strong work ethic

	includes: ▪ exhibiting responsibility: coming to work as assigned, contributing work required to meet organizational goals, adhering to policies and procedures, managing time to accomplish assigned tasks ▪ exhibiting flexibility and adaptability: working longer hours than normal to accomplish a goal, substituting for an absent co-worker, taking a temporary assignment, accepting changes in the work environment as a challenge and an opportunity.
Demonstrate a positive attitude.	Demonstration of a positive attitude includes: ▪ cooperating with co-workers and supervisors ▪ taking direction willingly ▪ exhibiting eagerness to learn ▪ acting in a pleasant and polite manner with customers, co-workers, and supervisors.
Demonstrate independence and initiative.	Demonstration of independence and initiative includes: ▪ working without constant supervision ▪ finding tasks to perform on one's own ▪ making suggestions for improvement ▪ exhibiting interest in making the organization more effective and productive ▪ maintaining work standards in the midst of change.
Demonstrate self-presentation skills.	Demonstration of self-presentation skills includes: ▪ identifying ways in which the individual employee represents the organization ▪ exhibiting a neat appearance ▪ using effective communication skills ▪ exhibiting elements of etiquette required in professional settings.
Maintain satisfactory attendance.	Demonstration of satisfactory attendance includes: ▪ being on time for work and all

	appointments ▪ limiting tardiness, early departures, and absences to legitimate and essential occasions ▪ explaining the importance of satisfactory attendance to the overall operation of the business ▪ negotiating anticipated absences according to company policy ▪ calling in to notify the supervisor of unanticipated absences.
Participate as a team member to accomplish goals.	Demonstration as a team member to accomplish goals includes: ▪ attending team (group) meetings, focusing on the topic and purpose of the meeting, offering facts and ideas, and helping others contribute facts and ideas ▪ passing on good ideas to others ▪ looking for ways to help others ▪ recognizing others for their contributions ▪ letting others know what is needed to get the job done ▪ explaining the importance of teamwork to the overall operation of the business.

The National Occupational Competency Testing Institute (NOCTI) developed a pre- and post-test learning assessment that supports the workplace lessons and skills (Opportunity Inc., 2006). These assessments are Virginia School Board approved and support Career and Technical Education programs. The questions are pooled from all thirteen workplace skills. Table 3 identifies the areas covered on each of Virginia's 13 Workplace Readiness Skills (Opportunity Inc., 2006).

Table 3. Areas covered on Workplace Readiness Skills Assessment

Workplace Skill	**Area Covered**
Reading Skills	5%
Math Skills	9%
Writing Skills	8%
Speaking and Listening Skills	8%
Computer Literacy	6%
Reasoning, Problem-Solving, and Decision Making	7%
Understanding the "Big Picture"	6%
Work Ethic	6%
Positive Attitude	8%
Independence and Initiative	8%
Self Presentation	13%
Attendance	6%
Team Member	10%

GRADE POINT AVERAGE

A student's academic future is often governed by an ability to maintain a high academic standing. An indicator for academic success is the student's grade point average. The grade point average (GPA) is the measurement of overall quality of performance. The GPA is calculated by taking the total number of grade points in a given period and dividing it by the total number of earned credits. For the student, a grade point average is essential for entrance into a college or university. High grade point averages can also help students to earn scholarships to pay for college or place the student on an academic excellence list. At the University of Virginia a minimum GPA is not required. UVA's reasoning for not assigning a minimum grade point average is that the GPA does not accurately present a student's class work load, possible grade inflation, or indicate if a student's grades have increased over time. The grade point average is combined with other factors to determine admission. Virginia Tech receives approximately 19,000 freshman applications a year. Prospective students' are told that

they will be considered if they have maintained a strong GPA (A/B average). George Mason University does not list a minimum grade point average, but requires one to be submitted. Also, GMU takes into consideration a student's level of difficult of course work when determining acceptance.

EMPLOYERS AND GRADE POINT AVERAGES

There are many predictors that employers use to determine if a prospective employee will perform at the required level for a job. Utilizing the grade point average as a strong indicator of academic performance, it can also be identified as a predictor of future work performance. However, in most cases the grade point average is only listed on the job application and is rarely discussed during an interview. The exception is when an applicant is a recent college graduate (Koeppel, 2006). John Taylor, senior vice president of human resources for IAC/InterActiveCorp, stated that, "A young applicant's GPA is the best single predictor of job performance in the first few years of employment" (Koeppel, 2006). Taylor also asserts that, "GPA is the best indicator an individual is likely to succeed and it demonstrates a strong work ethic and smarts" (Koeppel, 2006, p. 1).

Lentz (2007) said, "When I work as a consultant, I always want to know the grades. But it counts for about 25% of my overall opinion of the candidate. If you cannot pass your classes with B's, it makes me wonder how much you value your education. Your grades show that you can commit to something and see it through". (Augustson, 2007, p. 1).

In a review of 46 research studies that compared grades and adult accomplishments, Hoyt (1965) concluded that grades have little relationship to adult accomplishment. The 46 studies were grouped into eight categories: business, teaching, engineering, medicine, scientific research, miscellaneous occupations, studies of eminence, and non-vocational accomplishments. One of the studies featured an investigation of medical school grades and physician performance. The conclusion was that medical school grades have a positive relationship to the early success of a physician, but they are not predictive after the first few years.

In another study which sampled 184 graduates of the University of Iowa, an investigation was made using eight characteristics which were considered significant to the prediction of success in general business. They included persuasiveness, drive, creativity, leadership, problem-solving ability, oral communication, identification with the business world, and identification with the company. None related positively with grade point averages (Pallett, 1965). "Employers are trying to predict who's going to be better able to hit the ground running" (Koeppel, 2006), Steinfeld, executive director of the Wasserman Center for Career Development at New York University, said, "With a recent graduate the employer has limited predictors for success with the GPA being the most promising" (p. 1). Steinfeld said, "G.P.A.'s can tell you who's a better student, that's true. They assume a high G.P.A. will make someone successful. But being a successful employee requires social and communication skills. Nobody even cares about G.P.A. after a few years" (Koeppel, 2006, p. 1).

In Japan, the Public Employment Service Office allows employer's to recruit students from the high school system. The employers and high schools arrange a

semiformal contract for recruits. The contract allows the employers to submit job offers. The student fills out an application for the job and submits the application to the schools recommendation committee. After reviewing the application the committee submits it for consideration by the employer. During the reviewing process the recommendation committee places a higher weight on grades, yet the employer views extracurricular activities as being more important (Stern & Wagner, 1999).

In England, the Confederation of British Industry published National Targets for Education and Training (NTETs) (1997). These targets were issued because of concerns from educationalists, industrialists, and trade unionists about the lack of basic skills and education. The foundation targets for the year 2000 were:

- By age 19, 85% of young people will achieve five General Certificate of Secondary Education at grade C or above, an intermediate Certified National Vocational Qualification or a National Vocational Qualifications level 2.
- Seventy-five percent of young people will achieve level 2 competence in communication, numeracy, and IT by age 19, and 35% will achieve level 3 competence in these core skills by age 21.
- By age 21, 60% of young people will achieve 2 General Certificate of Education A levels, an Advanced General National Vocational Qualifications or a National Vocational Qualifications level 3 (DFEE, 2000).

The 2001 Report on the American Workforce identified a gap created between the jobs being formed and the workers who are filling them. The gap is occurring because industry has become a highly skilled, information-based system. Elaine L. Chao, Secretary of Labor, said, “With enlightened leadership, the private, public, and nonprofit

sectors, working together, can develop innovative solutions to evermore-complex labor market problems" (DOL, 2001, p. 7).

SUMMARY

Given the history of skills in the workplace, a prevailing question remains: what correlation is there between workplace readiness skills and a student's grade point average as a predictor for successful employment? As cited by Taylor, "A young applicant's GPA is the best single predictor of job performance in the first few years of employment" (Koeppel, 2006, p. 1). There is little research that proves a direct correlation between workplace skills and a student's GPA leading to successful employment. Although there was a lack of research to prove the hypothesis, there was information available to provide a background and significance for further research. Chapter III, Methods and Procedures, describes the design and use of the Workplace Readiness Skills test and the student's GPA.

CHAPTER III

METHODS AND PROCEDURES

Chapter III describes the methods and procedures that were used in the study. The focus of the study was to determine if there was a correlation between Career and Technical Education students Workplace Readiness Skills scores and their current year accumulated GPA as a predictor for successful employment. The following sections provide details on the population, research variables, instrument design, methods of data collection, and statistical analysis.

POPULATION

The population for this study was composed of 50 11th and 12th grade students from the Information Technology and Telecommunication classes taught at the Advanced Technology Center, Virginia Beach City Public Schools. The classes were the Computer Network Administration course, Cisco Academy, and the Telecommunications course. The Network Administration course teaches students how to provide administrative functions to small and/or medium computer information networks. The Telecommunications course instructs students on the basic concepts and structural elements of voice, video, and data communications within the telecommunications industry. The Cisco Networking Academy course teaches students how to design, manage, and troubleshoot home and small business networks. The population reflected a broad representation of race, sex, and socioeconomic status.

RESEARCH VARIABLES

The two independent research variables for this study were work place readiness skills (WPRS) and grade point averages (GPA). WPRS were calculated on a 100 point scale. GPAs were calculated on a 4.0 scale where a grade of A was equal to a 4.0. Students who took advanced placement courses received extra credit and conceivably, these students could attain GPAs greater than 4.0. There were no dependent variables.

INSTRUMENT DESIGN

The Workplace Readiness Skills assessment was given twice a year by the National Occupational Competency Testing Institute (NOCTI). This test was designed to measure the depth of a students learning and their acquisition of the 13 Virginia work place readiness skills. The test lasted 90 minutes and consisted of 100 multiple choice type questions. The validity of the test was based on the use of subject matter experts and use of standards which have been endorsed by the American Educational Research (AERA), The American Psychological Association (APA), and the National Council on Measurement in Education (NCME).

Each student took the assessment twice during their course of instruction. The first is a pre-assessment which identified a student's current strengths and weaknesses in the WPRS areas. The pre-assessment only gave an individual's scores and does not include comparative data. With this information, an instructor is able to tailor WPRS lesson plans for the student's specific needs. The post-assessment identified the student's improvement/gains. A comparison report was issued for the student's pre- and post-test assessment scores.

METHODS OF DATA COLLECTION

Data for the study was gathered from 50 students. The data included WPRS post-assessment scores and GPAs. The population and data were provided by the administrative office at the Advanced Technology Center.

STATISTICAL ANALYSIS

Statistical analysis of the data was completed by examining each student's WPRS and GPA. The Pearson's Product Moment correlation was used to determine the degree of linear relationship between the two variables.

SUMMARY

The populations for the study consisted of 50 11^{th} and 12^{th} grade students from the Information Technology and Telecommunication course at the Advanced Technology Center in Virginia Beach, Virginia. Student's workplace readiness skill scores and their current year grade point average were used for the research variables. The National Occupational Competency Testing Institute (NOCTI) developed the skills assessment for the WPRS scores. The GPA was determined by a 4.0 point scale. Pearson's Product Moment Correlation was used for the statistical analysis for this study. Chapter IV will present the study's findings.

CHAPTER IV

FINDINGS

The purpose of this study was to determine the relationship between workplace readiness skills test scores of students' with their current year grade point average in the Information Technology and Telecommunication ATC courses as a predictor of successful employment. This chapter presents the statistical tabulations of data collected for this study.

DATA REPORTING

The findings are based from data collected from 50 students in the Computer Administration, Cisco Networking Academy, and Telecommunications courses offered at the Advanced Technology Center. The students' Workplace Readiness Scores were obtained using NOCTI assessments and the students' current school grade point averages were collected from the school systems database. A comparison of GPAs and Workplace Readiness Skills scores was made using the Pearson product-moment correlation. Table 4 contains data on the GPAs and WPRS scores for the 50 students in the population.

Table 4. GPAs and WPRS Data

Sample	Grade Point Averages	Workplace Readiness Skills
S1	2.7	2.3
S2	2.6	2.3
S3	2.5	2.7
S4	3.4	2.3
S5	2.8	1.8
S6	2.3	2.6
S7	3.2	2.6
S8	3.1	2.3
S9	3.6	3.3

S10	2.9	3
S11	2.1	1.5
S12	2.2	2.7
S13	2.8	2.5
S14	3.1	2.7
S15	2.6	2.6
S16	2.4	3.1
S17	2.1	2.2
S18	2.6	3.1
S19	1.8	0.4
S20	3.0	2.3
S21	2.6	2.2
S22	2.2	2.9
S23	2.0	3.2
S24	2.5	2.6
S25	2.7	2.7
S26	2.2	3.5
S27	3.4	2.6
S28	3.7	3.1
S29	2.3	2.8
S30	2.8	2.9
S31	1.2	1.6
S32	3.4	2.9
S33	3.9	3.4
S34	3.1	2.5
S35	3.3	3.3
S36	2.2	1.8
S37	3.0	2.1
S38	4.0	2.8
S39	2.7	3.2
S40	2.2	2.1
S41	2.8	3.1
S42	3.3	2.9
S43	1.3	2.6
S44	2.7	1.8
S45	2.8	1.7
S46	3.6	2.4
S47	2.9	2.5
S48	3.3	2.9
S49	3.0	2.4
S50	2.1	3.4

DATA ANALYSIS

The degree of relationship between workplace readiness skills and grade point averages was computed utilizing the Pearson product-moment correlation coefficient (r). The r value was + .32. From the table of significance, the .05 level of significance was .2789 and the .01 level of significance was .3613.

SUMMARY

In this chapter, data were analyzed using the Pearson product-moment correlation to determine whether there was a significant relationship between work-place readiness skills scores and current grade point averages. Chapter V summarizes the research of this paper, analyzes the results of the information provided in this chapter, draws conclusions, and makes recommendations.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The purpose of this chapter was to summarize what has been accomplished through this research. Conclusions were derived to answer the hypothesis that was established for this study. Recommendations were developed based upon the information presented by the study.

SUMMARY

The problem of the study was to determine the relationship between workplace readiness skills test scores of students with their current year grade point average in the Information Technology and Telecommunication ATC courses as a predictor of successful employment. The hypothesis of the study was identified as follows:

H_1: There is a correlation between Career and Technical Education students' Workplace Readiness Skills scores and their accumulated GPA.

During 1997, the Weldon Cooper Center for Public Service, University of Virginia, conducted a study which identified 13 Workplace Readiness Skills that were needed to succeed at work. The identified skills were divided into two skill groups, hard and soft. Hard skills consisted of reading, mathematics, writing, speaking, computer literacy, reasoning, problem-solving, decision-making, and understanding the big picture. They were primarily taught within a school environment. The second skill set consisted of work ethic, positive attitude, independence, initiative, and self-sufficiency. These skills were usually taught at home. The results of the Virginia Changing Workplace study became the foundation for the Virginia's Workplace Readiness Skills curriculum. The development of the curriculum was a joint venture between Virginia Beach City

Public Schools, Virginia CTE Resource Center, and Opportunity, Inc. The curriculum was published in May 2006. These skills were assessed using pre-and post-learning assessments developed by the National Occupational Competency Testing Institute.

The grade point average (GPA) is the measurement of overall quality of performance. The GPA is calculated by taking the total number of grade points in a given period and dividing by the total number of earned credits. The GPA used in this study is the 4.0 grading scale.

The limitations of this study were identified as follows:

1. The population of this study was limited to three classes at the Advanced Technology Center in Virginia Beach, Virginia. The study involved 50 students. They were in the classes of Computer Network Administration, Cisco Certified Network Academy, and Telecommunications.
2. The study was limited to students who have taken the NOCTI assessment for workplace readiness skills.
3. The study was limited to comparisons of workplace readiness skills that utilized NOCTI assessment scores and the student's grade point average.
4. Grade point averages used were those of student's current school year.

The Pearson's Product Moment Correlation was calculated for the two sets of raw data and used to determine the level significance and level of magnitude of the relationship between workforce readiness skills and grade point averages.

CONCLUSION

This study was designed to determine the relationship between workplace readiness skills test scores of students with their current year grade point average in the Information Technology and Telecommunication courses. The following hypothesis was answered:

H_1: There is a correlation between Career and Technical Education students' Workplace Readiness Skills scores and their accumulated GPA.

The Pearson product-moment correlation (r) value was + .32. From the table of significance, we find our value exceeds at the .05 level of significance of .2789. Therefore, we can accept our hypothesis. From the Table of Magnitude (.30) it was determined that a moderate correlation existed between scores on the Workplace Readiness Skills and Grade Point Averages. Therefore, we can conclude that students with high grade point averages will show a definite but moderate relationship with their work place readiness skills scores.

RECOMMENDATIONS

Based upon the findings and the conclusions of this study, the researcher included the following recommendations:

1. Additional research should be conducted to include the students work experiences and number of Technical and Career Education courses taken to determine if experiences and/or TCE courses contribute to an increased WPRS score.

2. Further investigation is needed into outside factors that might contribute to the above average WPRS scores. Identification and replication of factors such as teaching strategies might prove valuable.
3. Samples used in the study should be increased to include graduates who are presently working in related technical fields and have taken the work place readiness skills assessment. An analysis of graduates would provide information on which work place readiness skills are utilized and to what degree they are used within the workplace.
4. Samples should include students who work in internships while attending the Advanced Technology Center Telecommunication and Information Technology courses to determine if the internship program increases a student's Workplace Readiness Skills score.
5. Additional research is needed to identify if individual students taking the Workplace Readiness Skills assessment are completing the assessment accurately. Participants who do not accurately complete the assessment could result in a lower level of magnitude.

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