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Comparison of High School Student Armed Forces Qualification Test Scores between New Jersey and the Rest of the United States

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A Comparison of High School Student Armed Forces Qualification Test Scores between New Jersey and the Rest of the United States

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APPROVAL PAGE

This research paper was prepared by Alain P. Wescott under the direction of Dr. John M. Ritz in SEPS 636, Problems in Occupational and Technical Studies. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the Master of Science in Occupational and Technical Studies.

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Alain P. Wescott

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CHAPTER I

INTRODUCTION

High school students face a variety of choices upon graduation. Some include college, universities, non-trade career training, trade schools, public service, apprenticeships, military, and direct employment. For most people, the option to work directly after graduating from high school is temporary and is not a career choice. However, should an individual decide to work after high school, graduating with a high school diploma will increase future opportunities. A survey from the Bureau of Labor Statistics (2010) showed that full-time workers without a high school diploma earn substantially less than workers with a high school diploma alone.

Continuing education at a college, university, or vocational school immediately following high school may not be the right choice for many people, especially if they were not adequately prepared in high school. Vocational or trade schools can offer individuals that are interested in a specific field a great path to a well-paying career. Despite being a better career choice in the job market, there is a shortage of vocational workers in the United States workforce probably because of the lack of focus on technology education in high schools.

A career in the military is not for everyone, however an individual can find a career path that he or she never imagined they would have thrived in or even liked. The Armed Services Vocational Aptitude Battery (ASVAB) measures an individual's strengths and potential for future success in a given career field. Whether a person decides to go to college, trade school, or have a career in the military, the ASVAB can be used as an indicator of a future occupation (ASVAB, 2011). This paper will focus on the

effectiveness of the United States high school education system on preparing students for the ASVAB.

STATEMENT OF THE PROBLEM

The problem of this study was to determine whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States.

HYPOTHESIS

To guide this study, the following hypothesis was established:

H_0 – There will be no significant difference in the AFQT scores of New Jersey high school students and of high school students from the rest of the United States.

BACKGROUND AND SIGNIFICANCE

Upon graduating from high school in the United States, new graduates will make a decision that will usually determine their lifelong career path. There are various post-graduation choices, however how these new graduates are prepared for their upcoming choices may determine an individual's future career success and may be a contributing factor in a stronger workforce.

While there is nothing wrong with joining the workforce immediately following high school, if more people were qualified for advanced training following high school the potential contributions to the workforce could possibly produce a more robust economy. If a high school graduate does not pass the ASVAB he or she will not gain entrance to the military. But the scores on the ASVAB can provide a test taker with career information for various military or civilian career occupations and can be an indicator for success in whatever career path an individual chooses. The importance of

the study was to determine the effectiveness of the high school education system on preparing students for the Armed Services Vocational Aptitude Battery. Using the ASVAB as a career exploration tool, pass rates can further indicate potential success in the labor market (ASVAB, 2011).

LIMITATIONS

This research was bounded by the following limitations:

1. The research was limited to 348,203 United States high school graduates between the ages of 17-20 who took the ASVAB within the years 2004-2009.
2. The research was limited to a comparison of New Jersey high school graduates compared to the remaining 49 states.

ASSUMPTIONS

The following assumptions were made:

1. It was assumed that the ASVAB test takers in this research were interested in enlisting in the military.
2. It was assumed that the individuals in this study do not have problems preventing them from enlisting in the military.
3. It was assumed that no information about socioeconomic status was collected from the ASVAB test takers in this study.
4. It was assumed that the academic preparedness of New Jersey high school students were similar to student preparedness in other states.

PROCEDURES

The experimental method of research was used to collect and analyze the information necessary for this study. The procedures for this study were to first collect information of the nationwide database results of high school graduates who took the ASVAB between 2004 and 2009. AFQT pass and fail scores from New Jersey high school students and of high school students from the rest of the United States were aggregated in pass and fail groups. To determine the significance of the collected data, the results will be compared statistically.

DEFINITION OF TERMS

The following terms were defined to assist the reader:

Assessment refers to testing or documented measurement of an individual's knowledge or skills.

ASVAB refers to the Armed Services Vocational Aptitude Battery and is a multiple choice exam containing nine sections. Two types of ASVAB are offered – a computer adaptive test (CAT-ASVAB) and a standard paper and pencil test.

AFQT refers to the Armed Forces Qualification Test. This is a score computed from using portions of the ASVAB subtest and is reported as a percentile ranging from 1 – 99. The score is used to determine qualification for military enlistment.

OVERVIEW OF CHAPTERS

The information in this study was divided into five chapters. Chapter I described the problem of determining whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States. The significance of measuring the effect of high school

performance can potentially impact the future workforce of vocational trades and Technology Education based careers. To direct the study, the Limitations and Assumptions were established in Chapter I as well. Also explained were the procedures for collecting the data and how it was analyzed. The special terms used in the study were defined in the Definition of Terms.

Chapter II will present information about the Review of Literature focusing writings and documentation concerning high school assessments and ASVAB career exploration. In Chapter III emphasis will be placed on the methods and procedures used in collecting data. Chapter IV will outline the findings of the study. The summary of the study and conclusions of the research will be presented in Chapter V and recommendations will be introduced for future research.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to determine whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States. The locations of the individuals in the study were from every state in the country. The main focus was on assessment data of high school graduates who took the ASVAB test. This chapter will review the literature regarding writings and documentation concerning high school assessments and ASVAB career exploration.

EFFECTS OF TRAINING AND EDUCATION ON THE LABOR MARKET

It can be difficult to understand what type of education will bring the most rewards and the widest chance of employment regarding vocational or traditional academic high school training. Aptitude and interest of an individual are important factors in choosing a career path. A young person immediately out of high school has far more latitude to choose a career which will take a long time to prepare than someone in mid-life faced with a necessary career change does. Traditionally, vocational training has provided a more immediate entrance in the job market than a liberal arts education.

According to a study by Georgetown University (2010):

> There is a growing mismatch between the jobs that will be created over the next decade and the education and training of our adult workers. More than 60 million of our prime-age workforce who are 25–54 years old are still working in jobs that require high school or less. This economy is receding fast and those workers will

be left behind: unemployed, underemployed, or likely stuck in jobs that don't provide middle-class wages. (p. 109)

Data from the U. S. Census Bureau (2009) demonstrate the extent to which education pays off; average earnings in 2008 totaled $83,144 for those with an advanced degree, compared with $58,613 for those with a bachelor's degree only. People whose highest level of attainment is a high school diploma had average earnings of $31,283. In another survey by the Bureau of Labor and Statistics (2009), it is suggested that individuals are less likely to become unemployed with completed education. The study also indicates that average earnings grow from $454 to $626 per week, just by earning a high school diploma. Getting a college bachelor's degree increases average earnings to $1,025 per week. A 2005 study (Rouse, 2005) states that globalization of the labor market increases, and U.S. workers – who are relatively skilled – compete with workers worldwide, so too, will the costs of incomplete or inadequate education increase.

HIGH SCHOOL ASSESSMENTS

Although high school exit exams may have a negative effect on low-performing students, determining the relationship between high school assessments and high school completion is difficult because of the number of societal factors that affect these rates. Assessments are not the only graduation requirements impacting students across the country. Although states may not set minimum performance standards for assessments, they may still impact high school student achievement. A 2007 policy brief (New Jersey's Special Review Assessment, 2007) states New Jersey as being one of 25 states that currently require high school graduates to successfully complete a high-stakes state assessment to earn a diploma. It is also one of 17 of those same states that have adopted

alternatives for students who do not pass the traditional assessment. There are two primary ways of satisfying New Jersey graduation requirements: the High School Proficiency Assessment (HSPA) and the Special Review Assessment (SRA). Either the HSPA or the SRA examinations are required to be passed by New Jersey high school students to graduate. Both also require that students successfully accumulate at least 110 course credits aligned with state standards and meet other local district requirements, and both require passing grades in required courses in order to earn a high school diploma.

As described in the 2007 policy brief (New Jersey's Special Review Assessment, 2007), the SRA is a way for students who have not passed all sections of the High School Proficiency Assessment (HSPA) to meet New Jersey's high school graduation requirements. It is a series of performance assessment tasks (PATs) designed by the New Jersey Department of Education (NJDOE) as an alternative assessment that provides students with the opportunity to exhibit their understanding and mastery of state graduation standards in contexts that are familiar and related to their experiences.

ASVAB CAREER EXPLORATION

The United States military has been successful in using aptitude tests to select personnel with necessary skills and abilities to learn military occupations. These military occupations all have equivalent or similar private sector career paths. The Armed Services Vocational Aptitude Battery (ASVAB) is an exam that measures developed abilities and helps predict future academic and occupational success in the military. This exam is combined of a battery of tests designed to determine the test takers skills as well as the abilities of individuals intending to enter the military services. In high schools, the ASVAB is sometimes used as a basic aptitude test and can be a predictor of vocational

success in the civilian workforce and, the test can measure aptitude in a broad range of career fields. The ASVAB scores can largely determine the occupations that an individual qualifies to seek training. Each branch of the military establishes a minimum ASVAB score for enlistees, and each branch has their own guidelines for retaking the test. The ASVAB is composed of nine timed subtests: Word Knowledge, Paragraph Comprehension, Mathematics Knowledge, Arithmetic Reasoning, General Science, Mechanical Comprehension, Electronics, and Assembling Objects. The Armed Forces Qualification Test (AFQT) is the combined scores from four of the academic subtests (Math, Arithmetic Reasoning, Word Knowledge, and Paragraph Comprehension). It is used to measure the general aptitude of the test taker for military qualification. The inventory can be taken by paper and pencil or Computer Adaptive Test (CAT) form and lasts approximately three hours.

As stated on the ASVAB Exploration Program (ASVAB, 2011), the ASVAB was developed in 1968 by the U. S. Department of Defense. The ASVAB Program recently was re-designed to be helpful to virtually all students, whether they are planning on immediate employment after high school in civilian or military occupations, or further education at a university, community college, or vocational institution. The ASVAB Career Exploration Program provides career exploration and guidance to high schools around the country and aims to help students to explore a variety of occupations corresponding with their interests and skills.

SUMMARY

According to a 2010 report by the Education Trust (2010), more than one in five young people do not meet the minimum standard required for Army enlistment, as

measured by the Armed Forces Qualification Test (AFQT) comprised of four academic subtests of the ASVAB. Military occupations mirror most career fields available in the civilian workforce, so people who do poorly on the ASVAB are likely unprepared for many civilian jobs, as well. This chapter reviewed the literature regarding writings and documentation concerning high school assessments and ASVAB career exploration. Chapter III will emphasize the methods and procedures used in collecting data.

CHAPTER III

METHODS AND PROCEDURES

The objective of this study was to determine whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States. This chapter contains information regarding the population studied, the instrument design utilized, the methods employed for gathering data, and the procedures used for data analysis.

POPULATION

The population of this study consisted of 6,455 New Jersey high school graduates and 341,748 high school graduates from the other 49 United States between the ages of 17-20 who took the ASVAB between 2004 and 2009.

INSTRUMENT DESIGN

The purpose of this study was to identify public databases of ASVAB and population data. The data for this study were collected by researching the online public databases of the Education Trust analysis of United States Army 2010 ASVAB data.

METHODS OF DATA COLLECTION

The students chosen for this study had to participate in the ASVAB Career Exploration Program in their junior and/or senior year. The reasoning was that participation in the ASVAB Career Exploration Program is voluntary and the information is made public to recruiting personnel of the Armed Services. The nationwide ASVAB scores for the students in the study were collected from the Education Trust analysis of United States Army 2010 ASVAB data. The data factors collected were the AFQT

ineligibility percentages and the total number of New Jersey and United States high school graduates from the ages of 17-20 who took the ASVAB between 2004 and 2009.

STATISTICAL ANALYSIS

The Chi-Square analysis was used to analyze the data to compare the frequency of pass and fail AFQT scores of New Jersey high school graduates to the rest of the United States high school graduates who took the Armed Services Vocational Aptitude Battery (ASVAB).

SUMMARY

Chapter III illustrated the methods and procedures used to gather and analyze data for this research. The population of this study consisted of 6,455 New Jersey high school graduates and 341,748 high school graduates from the other 49 United States between the ages of 17-20 who took the ASVAB between 2004 and 2009. The nationwide ASVAB scores for the students in the study were collected from the Department of Defense Office of Personnel and Readiness database website. The Chi-Square analysis was used to analyze the data to compare the frequency of pass and fail AFQT scores of New Jersey high school graduates to the rest of the United States high school graduates who took the Armed Services Vocational Aptitude Battery (ASVAB). Chapter IV will report the findings from the survey.

CHAPTER IV

FINDINGS

The purpose of this chapter was to report the findings of the research. The objective of this study was to determine whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States. This chapter presented the data obtained from analyzing existing information provided by the Department of Defense Office of Personnel and Readiness database website. A summary of the findings is presented at the end of this chapter.

ANALYSIS OF DATA

The population of this study consisted of 6,455 New Jersey high school graduates and 341,748 high school graduates from the other 49 United States. The participants were aged 17-20 and took the ASVAB between 2004 and 2009 and had an interest in joining the military. Within the total United States population, 22.6 percent of all test takers failed to achieve a qualifying ASVAB score of 31(AFQT). The New Jersey ASVAB test taking population for this study had a 26.5 percent AFQT failure rate. For the purposes of data analysis, data summaries of the pass and fail scores for New Jersey were compared with the United States totals. A Chi-Square test was carried out for the comparisons.

Using Chi-Square analysis, the results were a value of $\chi^2 = 160.24$ with a degree of freedom of one, and a level of significance at $p > .01 = 6.64$. Table 1 outlines the results.

Table 1

Chi-square Matrix of New Jersey and USA AFQT scores

	NJ Students	USA (excluding NJ)
Passed AFQT scores	4744	264,765
Failed AFQT scores	1711	76,983

SUMMARY

The researcher reported the results of the study to determine whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States. In this chapter, the researcher collected nationwide ASVAB data from the Department of Defense Office of Personnel and Readiness database website. A Chi-Square analysis was performed comparing the ASVAB test taking population of New Jersey high school graduates with the ASVAB test taking high school graduates of the rest of the United States. Chapter V will discuss the summary of the research, draw conclusions to answer the research goals, and make recommendations for future studies.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter was to provide a summary of the research. The conclusions and the recommendations provided in this chapter were based on the data collected and analyzed by the researcher of this study.

SUMMARY

The Armed Services Vocational Aptitude Battery assesses an individual's vocational readiness in a range of career paths. Although the ASVAB is mainly used to determine if applicants qualify for enlistment, it displays personal aptitude and qualification for military occupations. The test can also help identify potentially satisfying civilian occupational paths for high school graduates and indicate non-military career success.

The objective of this study was to determine whether New Jersey high school students achieved the same scores on the Armed Forces Qualification Test (AFQT) as high school students from the rest of the United States.

The hypothesis stated prior to the collection of data was:

H_0 – There will be no significant difference in the AFQT scores of New Jersey high school students and of high school students from the rest of the United States.

The limitations of this research were:

1. The research was limited to 348,203 United States high school graduates between the ages of 17-20 who took the ASVAB within the years 2004-2009.
2. The research was limited to a comparison of New Jersey high school graduates compared to the remaining 49 states.

In this study, the following assumptions were made:

1. It was assumed that the ASVAB test takers in this research were interested in enlisting in the military.
2. It was assumed that the individuals in this study do not have problems preventing them from enlisting in the military.
3. It was assumed that no information about socioeconomic status was collected from the ASVAB test takers in this study.
4. It was assumed that the academic preparedness of New Jersey high school students were similar to student preparedness in other states.

A Chi-Square analysis was performed using the total New Jersey high school graduate ASVAB test taking population and the remaining 49 United States high school graduate ASVAB test taking population.

CONCLUSIONS

Based on the research design, the hypothesis stated prior to the collection of data was:

H_0 – There will be no significant difference in the AFQT scores of New Jersey high school students and of high school students from the rest of the United States.

The data showed that since the χ^2 value of 160.24 is greater than 6.64 at the .01 level required for significance, therefore the researcher rejects the H_0. The researcher concluded that there is a significant difference in the AFQT scores of New Jersey high school students and of high school students from the rest of the United States. Significantly within this study, the ASVAB test takers from New Jersey high schools achieved greater failing and lower passing AFQT scores when compared with high

school students from the rest of the United States. The results of this study displayed that New Jersey high school education trails the rest of the United States in adequately preparing students for the Armed Services Vocational Aptitude Battery (ASVAB).

RECOMMENDATIONS

Based on the findings and conclusions of this study, the researcher recommended the following for future studies:

1. A study should be conducted to determine whether there is a correlation between socioeconomic status and ASVAB assessment results.
2. Further research needs to be conducted to determine the relationship of GPA's and AFQT scores between individual ASVAB test takers.
3. A study needs to be conducted of the future career intentions of individual ASVAB test takers to determine possible career biases of test takers.
4. Research should be completed on the test taking conditions of all test takers to determine similar testing environments and test preparation procedures.
5. An assessment of the New Jersey high school education system should be conducted to help develop and improve the academic achievement of New Jersey high school students.

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